

County Borough



of Blackburn.

ANNUAL REPORT

UPON THE

Health of Blackburn

For the Year 1920

BY

W. ALLEN DALEY,
M.D., B.Sc. (Lond.), D.P.H. (Cambridge), B.A.

MEDICAL OFFICER OF HEALTH,
ADMINISTRATIVE TUBERCULOSIS OFFICER,
MEDICAL SUPERINTENDENT OF THE CORPORATION HOSPITAL,
SCHOOL MEDICAL OFFICER.

BLACKBURN:

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Members of the Town Council.

November, 1920.

HIS WORSHIP THE MAYOR (LAWRENCE COTTON, Esq.).

Alderman William Thompson.	*Councillor William Henry Grimshaw.
*Alderman Lawrence Cotton.	Councillor Charles Higham.
†*Alderman Joseph Fielding.	*Councillor Walter Albert Duckworth.
*Alderman Houlker Watson.	Councillor James William Makin.
*Alderman Michael Shorroch.	Councillor Ernest Hamer.
*Alderman James Taylor Thom Ramsay	Councillor Thomas Henry Heatley.
Alderman William Kenyon.	*Councillor John William Walsh.
Alderman Scholes Rostron.	Councillor Thomas Gilbert Dugdale.
Alderman James Kay.	*Councillor Francis Harrison.
*Alderman William Garsden.	*Councillor James William Ellison
Alderman John Thomas Duckworth.	Councillor John Catterall.
Alderman Daniel Ainsworth.	*Councillor Charles Albert Critchley.
Alderman Thomas Parkinson.	Councillor Arthur Townsend.
Alderman George Green.	Councillor Frederick Pollard.
Councillor Thomas Sharples.	*Councillor Philip Prebble.
*Councillor John Wilson Carmichael.	‡*Councillor Francis John Greeves.
*Councillor John Leigh.	Councillor Henry Russell Hornby
Councillor George Hargreaves.	*Councillor David Edward Brierley
*Councillor John Wilson Moir Jamieson.	Councillor Luke Bates.
Councillor John Shorroch.	Councillor William Hammond.
Councillor John Eddleston.	*Councillor Robert Wareing.
*Councillor Albert Hayes.	Councillor James Fish.
*Councillor James Johnson.	Councillor Alfred Read.
*Councillor John William Keighley	Councillor Thomas Dugdale.
Councillor George Burke.	Councillor Edward Porter.
Councillor William Jenkins.	Councillor James Miller.
Councillor John William Forrest.	Councillor John Makinson Lomax.
*Councillor James Fryars.	
Councillor James Stanworth.	

†Chairman, Health and Maternity and Child Welfare Committee.

‡Vice-Chairman, Health and Maternity and Child Welfare Committee.

*Members of Health and Maternity and Child Welfare Committee.

Co-opted Members of the Health and Maternity and Child Welfare Committee.

Mrs. T. Crane.

Miss K. Howard.

Mrs. H. J. Harvey.

Staff of the Health Department.

Medical Officer of Health, School Medical Officer and Chief Executive Tuberculosis Officer.

J. COOTE HIBBERT, M.D. (Lond.), D.P.H.
(To 12th January, 1920.)

W. ALLEN DALEY, M.D., B.S., B.Sc. (Lond.), B.A., D.P.H.
(From 1st July, 1920.)

Assistant Medical Officer of Health and Tuberculosis Officer.
(Acting Medical Officer of Health, 12th January to 1st July, 1920).

A. J. EWING, M.A., M.B., Ch.B., D.P.H.

Assistant Medical Officer of Health and Assistant School Medical Officer.

J. ROBERTSON, M.B., C.M., D.P.H.

Maternity Officer (Assistant Medical Officer of Health).
VACANT.

Veterinary Inspector and Chief Meat Inspector.

E. J. BURNDRED, M.C., M.R.C.V.S., D.V.H.

Assistant Meat Inspector.

*W. H. GOODMAN.

Chief Sanitary Inspector.

*JAMES GRAHAM.

Special Inspector for Food and Drugs, &c.

*O. H. WILLIAMS.

Special Inspector for Factories and Workshops.

*H. KENYON.

Special Inspector for Drainage Work.

*A. LEES.

District Inspectors.

*J. W. MARGINSON.

*W. WALNE.

*ERNEST SEFTON.

*H. W. FOWLER. *E. SHUTTLEWORTH.

Superintendent of Nurses, Corporation Hospital.

Miss C. GOLD.

Lady Health Visitors.

†*Miss ST. STEPHENS.

†*Miss LOWE.

*Miss LANGLEY.

*Miss MARTIN. *Miss STANANOUGH. *Miss WILKINSON.

Lady Inspectors of Midwives.

†*Miss ST. STEPHENS.

†*Miss LOWE.

Chief Clerk.

THOMAS FOWLER.

Clerks.

H. PEMBERTON.

T. PICKERING.

J. R. MARSDEN.

J. MARGINSON.

Disinfectors.

J. W. JOHNSON.

F. HOLDEN.

*Holders of the Royal Sanitary Institute Certificates.

†Certificated Midwives.

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Summary for 1920.

Area in Acres	7,431
Population at Census of 1911	133,052
Registrar-General's estimated Population in July, 1920	131,012
Estimated Population in July, 1920, used in calcu- lating Statistics in this Report	140,000
No. of Houses in the Borough at Census of 1911	31,131
Average Number of Persons in each Inhabited Building at Census of 1911	4.39
Number of Births during 1920	2,835
Birth-rate per 1,000 of the population	20.1
Number of Deaths	1,786
Death-rate per 1,000 of the population	12.7
Natural Increase of the population during the year	1,049
Number of Deaths of Infants (under the age of one year)	311
Infantile Mortality per 1,000 Births	110
Number of Uncertified Deaths	7
Deaths from Influenza	59
Death-rate from Influenza per 1,000 of the population	0.42
Death-rate from the seven principal zymotic dis- eases :—Smallpox, Whooping-cough, Measles, Diphtheria, Diarrhœa, Scarlet Fever, and “ Fever ” (Typhoid, Enteric, and Typhus), per 1,000 of the population	0.55
Death-rate from Diarrhœa and Enteritis of chil- dren under two years, per 1,000 births	12.3
Death-rate from Phthisis per 1,000 of the popu- lation	0.58
Death-rate from all forms of Tuberculosis per 1,000 of the population	0.79
The Rateable Value of the Borough was, for 1920-1921	£626,117
In 1921-1922 the General District Rate was 7/- in the £, and the total Rates in the £ (excluding Water Rate and Charges), 16/4.	

“ The Public Health is the Foundation on which reposes the happiness of the people, and the power of a country. The care of the Public Health is the first duty of a statesman.”

—LORD BEACONSFIELD.

PUBLIC HEALTH OFFICE,

BLACKBURN,

June, 1921.

*To the Mayor, Aldermen and Councillors of the County
Borough of Blackburn.*

GENTLEMEN,

I beg to submit herewith my first Annual Report to you. It relates to the operations of the Public Health Department during the whole of 1920, though I took up my duties as your Medical Officer on the 1st July only.

Dr. Coote Hibbert, my predecessor, resigned his office on the 12th January, and Dr. A. J. Ewing acted as Medical Officer in the interregnum.

In addition to being a review of the past year's work, a stocktaking showing our present position, and a foreshadowing of our future needs, an Annual Report may serve other functions, as is well set out in the following quotation from a circular of the Ministry of Health :—

“ It is further suggested that your Council should arrange for the Annual Report to be distributed locally, as soon as it is available, as widely as possible, and should take steps through the local Press, and otherwise, to bring its contents effectively to the knowledge of the people. One of the main purposes of the compilation of the Report is, that by giving it the widest possible publicity, it shall engender a popular interest in the subject, and an enlightened public opinion which shall support the Local Authority in realising its high responsibilities for the health of its area, and in remedying, at the earliest opportunity, the various defects which the survey may bring to light, whether arising from war conditions or from other causes. Such an increase of

public knowledge and interest in these matters may also become an effective means of educating the citizens in the more important conditions of public health, of warning them against particular dangers, and of securing that highly important co-operation and confidence between them and the Health Authority and its staff, which is essential to successful health administration."

The outstanding features of the year, from a public health point of view, have been :—

1. The lowest general death-rate ever recorded in the town.
2. The lowest death-rate from tuberculosis.
3. Extension of Maternity and Child Welfare work.
4. Inauguration of work with the object of educating the public on health matters.
5. Progress, howbeit slow, with the erection of municipal houses.

It is with very considerable pleasure that I record my high appreciation of the willing support I have received from every member of the staff. Without wishing to make invidious distinctions where all have done so well, I must mention particularly Dr. A. J. Ewing, who has acted ably as my Deputy; Mr. E. J. Burndred, who is responsible for the Abattoirs, Veterinary Work and Meat Inspection; Mr. J. Graham, the Inspector of Nuisances; and Mr. T. Fowler, who has made nearly all the calculations required for this Report, and who is a mine of information on the past work of the Department.

I cannot conclude without asking you to accept my grateful thanks for the courteous consideration which you have invariably given to my recommendations.

I have the honour to be,

Your obedient servant,

W. ALLEN DALEY,

Medical Officer of Health.

COUNTY BOROUGH OF BLACKBURN.

ANNUAL REPORT

of the

Medical Officer of Health.



NATURAL AND SOCIAL CONDITIONS OF THE DISTRICT.

I. *Population.* The population of Blackburn, at the Census of 1911, was 133,052. The Registrar-General's estimate of the population in July, 1920, is 131,012, but this figure, calculated without local knowledge, is obviously an under-estimate. Even assuming that the number of persons per house has not increased since the Census, an additional 6,500 persons are occupying the houses then empty and those built subsequently. Further, the number of sugar cards issued at the time of food rationing exceeded 140,000. I have therefore decided, in calculating the vital statistics of the town, to use this figure, 140,000, as the population.

The danger of under-estimating a population is that the death-rates appear too high and may cause unnecessary alarm; on the other hand, if the population is over-estimated the rates are too low, and the need for undertaking sanitary reform may be cloked.

It is unfortunate that the Census of 1921 is to be taken during a week-end at the end of June. The effect will be to reduce the population of places like Blackburn and increase that of seaside and holiday resorts, with the result that our recorded population will be less than the normal, and all our vital statistics, such as the birth-rate and death-rate, which are calculated per thousand of the population, will be in-

creased. It is obvious, therefore, even now, that it will be advisable to take a local census as provided in the Census Act, 1920, midway between the censuses of 1921 and 1931.

2. *Physical Features.* Blackburn is situated chiefly in the valley of the Blakewater, and to a much smaller extent in the valley of the Darwen. The following are the heights above sea level in various parts of the town :—

Witton	318 feet.
Station	360 „
Town Hall	377 „
Infirmary	402 „
Intack	483 „
Corporation Hospital	560 „
Revidge	715 „

The rivers join on the western boundary of the Borough. On the north side of the Blakewater the land rises rapidly after the first few hundred yards from a height of about 300 feet to 700 feet. To the south and west of the River Darwen there is also a fairly rapid rise from a height of 300 feet to one of 600 feet. The land between the two rivers has at first no great inclination, but towards the south-east it rises rapidly to a height of 650 feet. On the north side the gradients are as high, in one or two instances, as one in seven, and one in ten or twelve are not uncommon. On the south side the steepest slope is one in ten. The fall of the valley of the Blakewater is 86 feet in $2\frac{1}{4}$ miles, or one in 138. The deep strata underlying the town are principally the Lower Coal measures or Gannister Beds. There is a narrow strip of Alluvium in the valley of the Darwen, and Mill-stone Grit (rock and shale) comes to the surface on the northern side of the Borough for a considerable area, and to a smaller extent on the southern side, where there is a large brick and sanitary ware works. The Gannister Beds underlie nearly the whole of the town proper, and those parts which have Mill-stone Grit for their deep strata are chiefly agricultural land. With one or two exceptions the deep strata are covered with drift beds. Throughout the greater part of the Borough the

drift beds are principally composed of clay; there is, however, a considerable area of land in the centre of the town covered with a good depth of pure sand. It includes the land on which the Town Hall, the Market House, the Parish Church, and the Railway Station are built, and reaches, in some instances, to a depth of 15 to 20 feet. Over the remainder of the town the drift beds are mostly clay or clay and gravel.

3. *General Character of the District.* The area of the town is 7,431 acres. There are two parks containing between them 140 acres; railways and reservoirs occupy 300 acres; 2,800 acres, or, approximately, two-fifths of the town are built upon, leaving 4,191 acres, half of which is in the south, of a semi-rural character. There are 148 mills, also several large engineering, milling, and brewing establishments in the town. The mills are located chiefly along the water-courses:—the rivers Blakewater and Darwen and the Leeds and Liverpool Canal. The town is divided for municipal purposes into fourteen wards of which the areas, census populations and density per acre, excluding occupiers of institutions, are as under:—

Density of Population in each Ward.

Ward	Census Population exclusive of those in Institutions	Area in Acres	Population per Acre
Park	9515	654	14·5
St. Andrew's	10971	925	11·8
St. John's	7796	103	75·6
St. Luke's	8422	154	54·6
St. Mark's	10440	405	25·7
St. Mary's	5737	171	33·5
St. Mathew's	9941	112	88·7
St. Michael's	9226	630	14·6
St. Paul's	10071	123	81·9
St. Peter's	6731	134	50·2
St. Silas's	9505	994	9·5
St. Stephen's	10780	1159	9·2
St. Thomas's	11687	1722	6·7
Trinity	9431	145	65·0
Institutions	2799		
	133052	7431	18·0

4. *Climate.* Blackburn's chief industry depends upon the dampness of its climate, and this atmospheric condition which brought the town its prosperity appears to cause an excessive prevalence of rheumatism, though until statistics of sickness amongst insured persons are published, the exact incidence of non-infectious diseases cannot be accurately known.

There is a small climatological station in the grounds of the Corporation Hospital, and in Appendix I. (Page 83) will be found details of the weather conditions during the year. It was characterised by the mildness of the first and fourth quarters, good weather of the second, and coolness of the third, all of which conditions are favourable to a low mortality. Taking the year as a whole, the rainfall of 43.67 inches was slightly greater than the average for the preceding 40 years, namely, 42.37 inches. It was greater than in 1919, when 39.88 inches fell, and less than in 1918, when the phenomenal fall of 52.21 inches was recorded. There are nine rain gauges in the town and its immediate neighbourhood, and the records range from 41.23 inches at the Samlesbury Sewage Works to 46.24 inches at Witton.

The month in which most sunshine was recorded was May. The month with the highest mean temperature was July, though during that month it rained for a portion of every day. The wind was westerly on 136 days and easterly on 125 days.

Number of days during the year on which the prevailing wind was :—

N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
17	2	115	8	88	19	96	21

5. *Social Conditions, including the Chief Occupations of the Inhabitants.* The staple industry of the town is Cotton Spinning and Weaving, particularly the latter, and a large amount of female labour is employed.

The number engaged in cotton spinning and manufacture at the Census of 1911 was larger than in any other town in the country. This industry gave employment to 15,896 men and 25,913 women, and included 9,933 male and 18,372 female weavers; 9,448 married women and 892 widows were textile operatives.

Considering the importance of the relationship between early industrial employment and health, it must be noted that at the Census 1,409 boys out of 4,679 aged 10 years and under 14, or 30 per cent., were engaged in remunerative occupations; and 1,415 girls out of 4,773 at these ages, or 29.6 per cent. Of children aged 12 years, 49.3 per cent. of the boys and 46.9 per cent. of the girls were engaged in industry; also 74.6 per cent. of the boys aged 13 years and 72.3 per cent. of the girls. Conditions of employment in the cotton industry are better now than then, but this early employment cannot have failed to leave its mark on the present generation.

6. *Poor Relief.* The first few months of 1920 saw the beginning of a decline in the prosperity of the textile industry, and at the end of the year there was a marked depression, but its effect on the health of the people did not, until after the close of the year, appear to be marked. An index of the thriftiness of the people is found in the fact that despite the acute industrial slump, the Blackburn Savings Bank recorded for the year ended 20th November, 1920, an increase in the amount of its funds as a result of deposits and interest of over £200,000. The Blackburn Amalgamated Co-operative Society increased its Share Capital by £38,751, and its Small Savings Account by £705. The Blackburn Union contained, at the time of the Census, a population of 235,545. It includes not only the County Borough of Blackburn, but also the Municipal Borough of Darwen the Urban Districts of Church, Great Harwood, and Oswaldtwistle, and other smaller townships. The Institutions of the Guardians are within the County Borough Boundary, and comprise Cottage Homes, an Institution with accommodation for some 750 persons, and the Queen's

Park Hospital attached thereto, in which some 230 patients can be treated.

Mr. C. E. Bygrave, the Clerk of the Blackburn Union, has kindly supplied me with the following statistics:—

BLACKBURN UNION.

Relief Statistics for 1920.

Township of Blackburn.

Number of persons in receipt of out-door relief.	Number in receipt of medical relief (outdoor) only	Amount of relief.	Number of persons relieved in the Institution on the 1st January 1921
1st July 1920. 525	12	Half year ended 31st March 1920. £3275-19-1	Sick 177 Insane 101 Infants (Nursery) 8 Aged and Infirm 261 <hr/> 547
1st January 1921 805	18	Half-year ended 30th Sept. 1920 £4071-8-2	No. of Children in the Cottage Homes 1st Jan'y 1921. 84

7. *Hospital Accommodation.* There is an excellent general hospital in the town, the Blackburn and East Lancashire Royal Infirmary. It can accommodate 152 patients, and owing to the length of the waiting list, an effort is being made to make substantial additions. The staff consists of eleven Honorary or Assistant Honorary Medical Officers, and there are now three House Surgeons. There are well-equipped Pathological and X-Ray Departments. During 1920 there were 2,439 in-patients and 6,803 out-patients; 1,802 operations were performed on in-patients and 528 on

out-patients; 1,427 of the in-patients and 4,324 of the out-patients were residents of the County Borough.

8. *Voluntary Organisations.* The Blackburn Convalescent Home is at St. Annes-on-Sea. It contains 31 beds, and during 1920, 489 patients were dealt with. The Blackburn Orphanage is in Wilpshire, and contains 132 children. The Blackburn and District Crippled Children's Aid Society, and the Blackburn Branch of the National Society for the Prevention of Cruelty to Children are doing excellent work. The East Lancashire Branch of the British Red Cross Society maintain in Blackburn a Home for Disabled Soldiers.

VITAL STATISTICS.

Appendices 2 to 8 (Pages 84-88) give details of the Vital Statistics for 1920 and previous years.

9. *Marriages.* The number of marriages during 1920 was 1,725 compared with 1,480 in 1919 and 856 in 1918. Eight hundred and eighty-eight took place in the Established Churches, 834 in Nonconformist places of worship and at the Registry Office, 2 at the Jewish Synagogue, and 1 at the Friends' Meeting House. The marriage-rate was 24.6 per 1,000 of the population.

10. *Births.* During the year 2,835 births were registered in the district; 8 children of Blackburn parents were born in other districts, and 16 children were born here of parents not usually resident in the town. The 2,827 Blackburn births represent a birth-rate of 20.1 per 1,000 of the population, being the highest recorded in Blackburn since 1913, when it was 21.7. The birth-rate for England and Wales in 1920 was 25.4. In 1919 the Blackburn birth-rate was 14.0, and for the decennium 1910-19 it was 18.0. There were 1,462 male and 1,365 female births, being a proportion of 1,071 males to 1,000 females. The increased proportion of males is a phenomenon which has been observed after other great wars.

The Ward with the highest birth-rate was Trinity, 23.4; St. Stephen's was the second highest, 23.3; and St. Silas's was the lowest, 13.0.

The illegitimate births numbered 130, and were 4.6 per cent. of the total; 3 took place outside the Borough. In 1919 the total number was 112; in 1918, 94; and in 1917, 85.

11. *The natural increase* of the population, i.e., excess of births over deaths, was 1,041, being a rate of 7.4 per 1,000 of the population. It is very gratifying that the natural *decreases* of the last three years have been compensated by the increase this year. In 1919, deaths exceeded births by 170, in 1918 by 623, and in 1917 by 141; and these were apart from the deaths of soldiers.

12. *Deaths.* The number of deaths registered in Blackburn during the calendar year was 1,921. This number includes the deaths of 187 non-residents which occurred in the Borough; 1 of these died in the Corporation Hospital, 82 in the Royal Infirmary, and 74 in the Union Infirmary. Fifty-two persons who died in other parts of the country were stated to have been inhabitants of Blackburn. These include 1 who died in a Poor-Law Institution, 4 who died in Voluntary Hospitals, and 21 in Lunatic Asylums.

When the necessary adjustments have been made the total number of deaths assigned to Blackburn is 1,786, which is a death-rate of 12.7 per 1,000 of the estimated population; in 1919 it was 15.9, and in 1918, 19.5. The death-rate for 1920 is the lowest ever recorded in the town.

The number of deaths which occurred in institutions was 477, being 25.2 per cent. of the total deaths, compared with 24.0 per cent. in 1919 and 21.8 per cent. in 1918; the increase is probably in consequence of overcrowding owing to demobilisation making it difficult to retain invalids at home.

The crude death-rate of the 96 great towns during 1920 was 12.5 compared with 12.4 in 1919 and 13.8 in 1918.

The death-rate in Blackburn for the decennium 1910-1919 was 15.7.

This year the highest death-rate was in St. Mary's Ward, 17.1; St. Peter's Ward has the second highest rate, 16.1; St. Silas's has the lowest rate, 10.5.

The death-rate during the first quarter of the year was 13.7, during the second 16.0, the third 9.3, and the fourth 11.4. The high rate during the second quarter was in consequence of an epidemic of Influenza which caused 59 deaths.

13. *Mortality in Relation to Sex.* There were 902 deaths of males and 884 of females.

14. *Infantile Mortality.* There were 311 deaths of infants compared with 174, 194, 180, 250, 357, 326, and 431 in each of the past seven years. The Infantile Mortality rate was 110. per 1,000 births compared with 94 in 1919, 125 in 1918, 111 in 1917, and 141 in the decennium 1910-1919; except for 1919 it has never been lower.

The rate of Infantile Mortality amongst males was 119, and amongst females 100. Throughout England and Wales the rate of Infantile Mortality was 80 per 1,000 births; in the 96 great towns it was 85.

Appendices 4 and 8 (Pages 84-88) give the causes of the infantile deaths. The more important are bronchitis and pneumonia, 20.4 per 1,000 births; diarrhoea and enteritis, 11.6; prematurity and congenital defects, 27.9; atrophy, debility and marasmus, 18; the rates for these diseases in 1919 being 22.2, 5.4, 29.3, and 16.3. The rate of infantile mortality amongst legitimate infants was 104 per 1,000 births, and amongst illegitimates 232.

This year St. Peter's Ward has the highest rate, viz., 197, and St. Mary's Ward the second highest, 139. (For full Ward statistics see Appendix 7, Page 87). The lowest rates were St. Silas's 54 and St. Mark's 74. The decennial rates below give a clear indication as to the location of the forces inimical to child life.

INFANT MORTALITY RATES.

Ward	Decennial Rate	1920
St. Mary's	196	139
St. Peter's	183	197
Park	170	125
Trinity	164	117
St. Luke's	161	99
St. Paul's	142	124
St. John's	138	112
St. Matthew's... ..	136	100
St. Stephen's... ..	133	136
St. Andrew's	126	82
St. Mark's	123	74
St. Thomas's	121	90
St. Michael's... ..	108	107
St Silas's	77	54

One hundred and four children died before they were a week old, and a total of 155, or 50 per cent. of all the deaths under one year, occurred in children under the age of one month. This is a neo-natal mortality rate of 54.8 per 1,000 births, compared with 45.7 in each of the two previous years, and an average of 47.8 for the decennium.

These figures show the extreme seriousness of the mortality under one month, and that we have not yet been able to make any appreciable reduction in these deaths. The facts impel us to develop at the very earliest opportunity

our schemes for promoting and improving the health of expectant mothers.

15. *Child Mortality.* In 1920 there were 63 deaths of children aged 1 to 5 years. The principal causes were :—

Respiratory Diseases	25
Tuberculosis	6
Diarrhœa	2
Measles	6
Diphtheria	4

This mortality from 1 to 5 years of age reflects more accurately than the rate of infantile mortality the sanitary conditions of the child's environment, and should be reduced as housing and other conditions affecting vitally the lives of the people are improved.

16. *Life Tables.* During 1920 there was published by the Registrar-General the first Life Table for Blackburn. A Life Table has been called a *biometer* or measurer of life; it is the very best statistical index of the healthiness of the locality concerned. From it the survivors at each age of 100,000 persons born and the average expectation of life at birth or at any age can be obtained. Life Insurance Companies base their premiums on the expectations of life which have been calculated for the country as a whole. The Life Tables just issued are based on the mortality during the years 1911 and 1912. The first Life Table for England and Wales was based on the mortality during the years 1838 to 1854. The expectation of life at birth for males has increased since then from 40 to 51 years, whilst for females the increase has been from 42 to 55 years.

The principal figures in Blackburn's first Life Table may be found in Appendix 9 (Page 89). It is to be noted that there are fewer survivors of male infants at one year of age in Blackburn than in any other of the 37 towns having populations exceeding 100,000, with the exceptions of Middlesbrough, Stoke-on-Trent, and Burnley, and at no age for males does the number of survivors in Blackburn approach

nearer the top of the list than 17th, which is the position at age 85. With regard to females, the survivors at one year of age are less only in Stoke-on-Trent and Burnley than in Blackburn, and the nearest approach to the head of the list is at ages 55 to 65 years, when Blackburn is 25th.

The expectation of life in Blackburn of a male infant at birth is 46.43 years compared with 51.14 for the country as a whole, 47.53 for the County Boroughs, and 56.3 for the Rural Districts. Blackburn's figure should be compared with those of other industrial areas, *e.g.* :—

Town	Expectation of Life at Birth. Males.	Position amongst 37 Towns.
Blackburn	46.43	27
Bolton	47.05	22
Bradford	48.84	13
Burnley	44.37	32
Coventry	51.79	4
Manchester	44.17	33
Oldham	44.76	30
Preston	44.64	31
Salford	43.77	34
Stockport	46.68	25

The expectations of life of females show similar variations in the different towns, but the expectation of life of a female is some three to four years greater than that of a male.

17. *Comparison with Past Years.* As it is the fashion to make pessimistic statements with regard to the health of the people, it will be well to consider not so much how bad we are, but how much worse we were in bygone years.

The following Table sets out the average death-rate in Blackburn in ten yearly periods from 1841 :—

COUNTY BOROUGH OF BLACKBURN.

DEATH RATE IN TEN YEARLY PERIODS.

1841 to 1850	29 per 1,000 of population.
1851 to 1860	29.5 ,, ,,
1861 to 1870	27.8 ,, ,,
1871 to 1880	26.5 ,, ,,
1881 to 1890	23.8 ,, ,,
1891 to 1900	21.3 ,, ,,
1901 to 1910	16.8 ,, ,,
1911 to 1920	15.6 ,, ,,

If we take the average death-rate of only thirty to forty years ago, namely 23.8, and compare it with the average of the past ten years, 15.6, we find that the saving of lives *each year* on a population of 140,000 has been 1,148, and it must be noted that during the war the recorded death-rate has been unduly high owing to the healthiest lives being away at the war, and the civilian population only having been taken for death-rate purposes.

Many factors are involved, but increased attention to sanitation and public health cannot have been without effect. Political economists would work out the capital value of these lives to the State at many thousands of pounds, and the humanitarian would consider our efforts justified if we had saved only one life.

The next Table sets out the rate of infantile mortality; the rates are in five yearly periods from 1881, the figures for previous years not having been recorded.

COUNTY BOROUGH OF BLACKBURN.

RATE OF INFANTILE MORTALITY IN FIVE YEARLY PERIODS.

1881 to 1885	177 per 1,000 births.
1886 to 1890	193 „ „
1891 to 1895	210 „ „
1896 to 1900	190 „ „
1901 to 1905	169 „ „
1906 to 1910	143 „ „
1911 to 1915	142 „ „
1916 to 1920	112 „ „

If we compare the average of the last five years, namely 112, with the average of twenty to twenty-five years ago, namely 199, a saving of 87 infants per 1,000 births is shown; or taking the number of births at 2,000, which it was during the war, 174 infants have been saved per annum. The post-war births will probably number 2,800 per annum, and the saving will be 243 lives each year. It should be noted that Health Visitors were first appointed in 1908, and this no doubt is responsible to some extent for the fall from 169 to 143 in the periods ending 1905 and 1910. Child Welfare Centres were established in 1915, and it is since then that the greatest fall in the rate of infantile mortality has occurred; but the effect of the change in our meteorological conditions has played a certain part in this reduction, for the old-fashioned cold winters gave rise to bronchitis and pneumonia, and the hot summers to infantile diarrhoea.

SANITARY CIRCUMSTANCES OF THE DISTRICT.

18. *Water Supply.* The following information has been kindly supplied by the Borough and Water Engineer, Mr. A. T. Gooseman, M.Inst.C.E. :—

“ Blackburn has an excellent water supply, both as regards quality and quantity; the supply is constant. It is moorland water, and is collected in the Brennand and

Whitendale Valleys in the Forest of Bowland, and conveyed, by gravitation, through 20 miles of 30in. dia. water pipes to the Service Reservoirs near Blackburn, where it enters the service mains and is distributed to the various parts of the area supplied.

The average daily consumption is 3,950,000 gallons, and the estimated total population supplied is 141,000, being an average of 28 gallons per head. The purity of the supply is unquestionable, no filtration being requisite. Although the water is of a very soft nature, cases of contamination by lead are unknown.

The following Table shows the capacities and levels of the various Service Reservoirs :—

	Capacity.	Height above Sea Level.
Fishmoor Reservoir	310,000,000 galls.	600 feet.
Parsonage Reservoir	196,000,000 „	615 „
Guide Reservoir	87,000,000 „	642 „
Audley Reservoir	13,000,000 „	593 „
Revidge Reservoir (old)	500,000 „	723 „
Revidge Reservoir (new) ...	2,500,000 „	719 „
Revidge High Level Tank ...	50,000 „	759 „
Sunny Bower Tank	20,000 „	586 „
Belthorne Tank	15,400 „	780 „
Total Watershed Area at Bowland		6,160 acres.
Area at present gathered from		4,665 acres.

Chemical analyses of the water are performed monthly by Mr. G. W. F. Holroyd, M.A., F.I.C., of the Blackburn Technical College, and the bacteriological content is reported upon by Professor Beattie, of the University of Liverpool. Particulars of recent analyses will be found in Appendix 10, Page 91.

The bacteriological content of the water as delivered from a service main is from 40 to 50 bacteria per cubic centimetre; colon bacilli were absent in 100 cubic centimetres.

19. *Rivers and Streams.* Many years ago there were complaints about pollution with noxious matter of the Rivers Blakewater and Darwen, but no nuisance was reported or discovered during 1920.

20. *Drainage and Sewerage.* The following brief account of the method of dealing with the sewage of the town has been prepared by the Borough Engineer :—

“The larger portion of the sewage of the Borough is collected by gravitation at Witton, where it is screened and passed through catch-pits to remove the gravel and rags which have obtained access to the sewers. It then travels to Samlesbury, a distance of $4\frac{1}{2}$ miles, in duplicate cast-iron pipe syphons and brick tunnels. A portion of the sewage from the low-lying districts is now lifted into the conduits by new electrically-driven centrifugal pumps situated at Fenisccliffe Bridge. Another main conduit takes the sewage from Beardwood district to Samlesbury.

“On arriving at Samlesbury, the sewage passes through a detritus tank into the septic tanks. These are two in number, and together hold six million gallons, being a dry-weather flow of about 30 hours. After septicisation, the sewage is treated with lime and sedimented in six tanks, which have a total capacity of about one million gallons. The effluent from these tanks is then treated either on percolating sprinkler beds, or on double contact beds. The sprinkler beds, 19 in number, and each 80 feet in diameter, are fitted with revolving distributors. They are constructed of rubble stone and filled to a depth of nine feet with broken stone and destructor clinker. The small amount of suspended matter in the effluent from the sprinkler beds is removed in five separator tanks. The sprinklers will deal with up to six million gallons of sewage per day, according to the strength of the sewage. There are twelve pairs of double contact beds which are filled with graded stone, destructor clinker and iron slag. These beds are being converted into percolating filters. A little over one million gal-

lons of sewage per day is treated on these beds, the effluent from which passes directly into the river. There is also ample provision for the treatment of storm-water. This water passes into ten tanks which were constructed for chemical precipitation, and which together hold $1\frac{3}{4}$ million gallons. After sedimentation in these, the storm-water (in excess of six million gallons per day) is either distributed over about 400 acres of farm land contoured and partially drained for broad irrigation, or treated on the contact beds, which are then used as streaming beds.

“ The average flow of sewage is nearly $5\frac{1}{2}$ million gallons per day.”

21. *Closet Accommodation.* The Borough Engineer informs me that at the end of 1920 the closet accommodation was as under :—

“ Privies	76
Pails	9,253
Slop-water	2,541
Water-Closets	26,487

Closets on the conservancy system existed in the town at the following places :—

Strawberry Bank	1
Ashton Street	4
Bonaccord Street	5
Eanam	2
Primrose Hill	19
Wensley Street	1
Whalley New Road	1 ”

The other privies are on the outskirts of the Borough.

22. *Conversions.* The following Table shows the number of conversions to water-closets carried out during 1920 and the preceding ten years :—

Conversion to Water Closets.

Year	Pail Closets	Slop-waste Water Closets	Privies
1910	5	6	0
1911	3	0	1
1912	16	11	0
1913	3	8	8
1914	32	5	0
1915	11	5	0
1916	1	2	0
1917	17	2	0
1918	0	2	0
1919	4	7	0
1920	25	4	5

The importance of removing filth from the neighbourhood of dwelling-houses with the utmost expedition being now recognised fully, a serious effort is being made to abolish pail-closets and privies. In the first five months of 1921, notices to convert 1,264 pail-closets were served and 754 conversions had been completed. The notice requires the conversion to be effected within 31 days of its receipt; if the work is carried out by the owner or by a contractor on his behalf, a grant of £8 has been paid; but from the 1st July, 1921, this will be reduced to £6 10s., which represents approximately half the cost of the conversion carried out by direct labour under the supervision of the Borough Engineer. If the conversion has not been commenced within 31 days, the work is carried out by the Borough Engineer's Department, and the owner is charged half the actual cost. About 23 per cent. of the conversions completed up to the 31st May, 1921, were carried out by the Borough Engineer.

During the first nine months of 1920 a grant of £3 15s. was made to the owner of any house who converted a pail without waiting for the receipt of a notice. For the last three months of the year the amount of the grant was increased to £8, and during the first few months of 1921 one hundred and seventy-three voluntary conversions took place. This grant also will be reduced to £6 10s. on the 1st July, 1921.

23. *Scavenging.* The following, compiled by the Borough Engineer, gives the information desired by the Ministry of Health :—

“ 1. The ashes are removed in four-wheeled lorries with hinged sides, a sheet being provided to cover the load when travelling through the streets.

2. Four Destructors are provided for destruction of the refuse, a portion also being sent to the tips.

3. *Earth Closets.* The ashes from these are emptied in the ordinary course of collection, the tank being emptied during the night time.

4. *Privies.* The few of these in existence are emptied during the day time, the contents being passed into the Destructor fires save in cases where these are taken for tillage by farmers.

5. *Pails.* The full tubs from pail-closets are collected in covered Manure Drags and replaced by clean ones which are taken out by Bogie. This work is carried out during the night time. The excreta are disposed of partly through the sewers and partly to farmers in agricultural districts in the county, to whom it is sent by rail in covered tanks.

6. *Cesspools.* These are emptied during the night time.

7. *Dry Ashpits.* These are emptied during the day time. Where accessible, the ashes are raked out on to the

back road. In inaccessible places the ashes are brought out in barrows and afterwards loaded into the lorries.

8. *Ashbins*. These are emptied direct into the lorry.

9. *Ashtubs*. Where the weight is not excessive, these are emptied direct into the lorry.

The following gives the different types of receptacles in 1916 and 1920 :—

1916.		1920.	
Ashpits	..... 8,789	Ashpits	..... 8,935
Ashtubs	..... 14,465	Ashtubs	..... 15,258
Ashbins	..... 2,046	Ashbins	..... 2,391
		Back Bins ..	566
	<hr/> 25,300		<hr/> 27,150."

The Blackburn Corporation Act, 1908, gives the Corporation power to require the provision of galvanised iron dust-bins; it greatly facilitates the work of scavenging if a bin can be lifted bodily and the contents emptied into the dust-cart, and an effort is therefore being made to substitute portable ashbins for the heavy ashtubs whenever the latter become worn out. Four hundred and twenty-two replacements took place during the year.

24. *Sanitary Inspection of the District*. A statistical summary of the work of the Inspector of Nuisances and his assistants will be found in Appendix II, page .

It will be seen that the number of complaints by inhabitants was only 349. As a result of these complaints, 782 nuisances were found. Altogether 4,208 nuisances were discovered during the year and many hundreds left over from 1919 were also dealt with.

Verbal notices to the number of 647 were served upon occupiers, chiefly for dirty yards, gully-traps or floors, or for the removal of rubbish, fowls, or manure. In 145 cases a

preliminary notice and in 29 a statutory notice had to be served before the nuisance was abated.

With regard to structural and other defects remediable by owners, 240 verbal, 2,031 preliminary, and 896 statutory notices were served. In 139 instances I had to write a letter to the owner, and in two cases (for failure to provide an ashbin) prosecution was necessary. During the year 4,076 defects were remedied by owners, and it is remarkable that with the exceptions just noticed it was all done without resort to the Court. Only 271 sanitary defects were outstanding at the end of 1920, compared with a very much larger number at its beginning. In order that Statutory Notices might be served for urgent nuisances (for example, choked drains) without delay, the Chairman or Deputy-Chairman of the Health Committee have been authorised by the Local Sanitary Authority to sanction the despatch of such notices without waiting for the meeting of the Health Committee or Council.

25. *Premises and Occupations which can be Controlled by Byelaws or Regulations.* (a) *Houses Let in Lodgings.* There are very few houses in Blackburn which are "sub-let," that is, where a second or third family take one, two, or more unfurnished rooms in a house designed primarily for one family, though in very many instances two families who are related to each other are now living together until the second family (usually that of a married son or daughter) can obtain a house for themselves. There are 50 registered houses where furnished rooms are let; they contain 219 rooms, and are all occupied. The number of families is 194, consisting of 513 persons, including 86 children. The average charge for each room is 5s. 4d. per week. The houses were frequently visited; 129 sanitary defects were discovered, and all but two were rectified before the close of the year.

(b) *Common Lodging-Houses.* There are now 19 Common Lodging-houses in the town, two having been closed during the year. Fifteen are for men only, three for married couples, and one for women only. Accommodation is

provided for 581 lodgers, eight being the number in the house for women. Visits of inspection numbered 781; 38 sanitary defects were discovered, and all were remedied. One of the two houses closed during 1920 was situated at 19, Larkhill. It was originally a mill, and was registered to accommodate 320 lodgers. It gradually became emptier; it was sold for business premises in 1919, and closed as a lodging-house early in 1920. The demand for lodgings is so small that even with this great reduction in the accommodation, there is still ample. The charge now is 9d. per night.

(c). *Offensive Trades.* There are 14 establishments in the Borough in which offensive trades are carried on, namely :—Tripe Boiling, 6; Fat Melting, 4; Gut Scraping, 2; Horse Slaughtering, 2. A considerable nuisance was caused by one of the fat-melters, but since new conduits for the steam have been used, no complaint has been received.

(d). *Canal Boats.* Eighty-two canal boats were inspected and 10 infringements of the Canal Boats Acts were discovered. The boats housed 146 males, 15 females, and 2 children. The Canal Boat Register contains particulars of 81 boats, but 13 cannot now be traced.

(e). *Underground Sleeping-rooms.* There is no underground sleeping-room which calls for action under the Housing, Town Planning, etc., Act, 1909.

(f). *Vans.* Fourteen vans which housed those who accompanied the workers at the Easter Fair were inspected and arrangements made for a water supply and sanitary conveniences.

(g). *Factories and Workshops.* Full particulars of the work done under the Factory and Workshop Acts will be found in Appendix 12 (Page 96). There were 723 workshops on the register at the end of the year, and they contained 881 rooms, 31 of which were underground. The register in 1920 shows a decrease of 10 workshops as compared with those existing in 1919. The visits to factories

numbered 283, and to workshops 1,694, as compared with 315 and 1,747 during 1919. In the Appendix are enumerated the 222 defects found in the various premises visited; 169 of these were remedied during the year, leaving 53 outstanding on the 31st December. The following is the character of the sanitary conveniences at the various workshops :

630 Water-closets.

142 Pail-closets.

During 1920, notices for the provision or reconstruction of sanitary conveniences were issued to 12 factories and 8 workshops.

Thirteen notifications relating to factories and 45 to workshops were received from H.M. Inspector to the effect that sanitary conveniences were absent or defective. There were 31 underground rooms on the register for 1920 (including those used by bakers), this number being the same as in 1919.

Bakehouses. There were 181 premises on the Workshops Register used as wholesale, retail or domestic retail bakehouses or as sugar-boiling establishments, and 22 notices were issued with regard to insanitary conditions and defects. There are now only two underground bakehouses compared with 21 in use at the end of 1903.

Food-Preparing Places. One hundred and forty-two visits have been paid in order to ascertain whether the sanitary conditions of the premises in which food is prepared are satisfactory. These include pork butchers' establishments and places where meat pies, black puddings, sausages, potted meats, tongues, etc., are prepared for human consumption. Visits of inspection have also been paid to the kitchens of restaurants, hotels, and dining rooms.

(i) *Out-Workers.* A list of out-workers was sent in twice during the year by 26 employers and once during the year by 8 employers.

26. *Other Sanitary Conditions Requiring Notice.*

(a) *Smoke Nuisance.* Owing to the difficulty under which trade was carried on during 1920, there was a tendency to disregard the nuisance caused by the emission of black smoke from factory chimneys. It is, unfortunately, not recognised that the discharge of particles of unburnt fuel from a chimney is an economic sin as well as being detrimental to the health of the people by the formation of a layer of smoke between the life-giving sun and the inhabitants of the town. In Pittsburg, U.S.A., where the people used to regard grime as a sign of prosperity and not a serious form of financial loss, it was shown in 1912 that the damage done by smoke amounted to £4 per head of the population per annum. Pittsburg is now one of the cleanest industrial centres in the world.

A recent investigation by the Manchester Air Pollution Advisory Board showed that the extra cost of soap and fuel for the weekly wash in Manchester, as compared with Harrogate, was 7½d. per household per week, making a total loss on the Manchester washing bill alone of £242,000 per annum.

An increasing use of gas and electricity for warming, cooking, and motive power is therefore greatly to be desired. Although we have no power to deal as a nuisance with the emission of smoke from domestic chimneys, it is probable that in the aggregate they pollute the atmosphere as much as do factory chimneys.

There are 190 factory chimneys on our Register; 92 are provided with smoke-consuming appliances, including 5 installed in 1920. Smoke observations, each of an hour's duration, were taken on 155 occasions. In 28, black smoke was emitted in excessive quantities.

(b) *Places of Public Entertainment.* At the request of the Justices and the Watch Committee, reports have been made on the sanitary condition, including means of ventilation, of the theatres, cinemas, and dancing halls, and several improvements have, as a result of our suggestions,

been carried out. The question of eye-strain in cinemas has been considered, and pending further requirements, the Licensees have agreed to exclude young children from the first few rows of the auditorium, as it is on the growing eyes of children that eye-strain is most apt to produce a deleterious effect. An endeavour has been made to secure through ventilation of cinemas and the admission of sunlight whenever the hall is not in use. The regular use of vacuum cleaners has been encouraged.

(c) *Rag Flock Act*. There are three premises in the town where rag flock is used. Four samples were taken during the year, and in one sample of carpet flock the limit of chlorine content allowed by the Rag Flock Regulations, 1912, was exceeded. A warning letter was sent, and the vendor promised that he would not obtain a further supply of this class of flock.

27. *Schools*. The Medical Officer of Health is the School Medical Officer, and issues a separate report on his work in that capacity. It was necessary on 21 occasions to require schools to be closed in order to prevent the spread of infectious disease.

FOOD,

28. *Milk*. Almost all the milk food sold in the town is produced at farms within or just outside the Borough Boundary. According to a return prepared in 1917, the fresh milk consumption per head in Blackburn was 0.11 pints per day, Blackburn having, with possibly one exception, the lowest consumption in the 48 towns investigated, where the average consumption was 0.22 pint.

An effort is being made to increase the cleanliness and, incidentally, the keeping quality of milk, by creating a demand for clean milk, and it is hoped that a supply will then follow. The Publicity Committee on Health are paying attention to this.

The chief need at farms where milk is produced is greater personal care and a realisation on the part of the farmer that clean milk can be produced without elaborate premises, provided reasonable precautions are taken.

Cowsheds should not only be swept out, but the floors should be swilled with water.

The cattle should be kept clean. There is no excuse for the accumulations of caked manure which are often seen on the hind-quarters of cows.

The milkers should be clean and have clean hands. Milking-stools should be kept clean. Open-topped milking-pails should be discarded, and replaced by those having a side opening.

The milk should be removed from the cowshed immediately after each cow is milked, strained and passed through a cooler as soon as possible. The common practice of standing churns of milk in a water trough is not a satisfactory way of cooling.

During the year 92 mixed samples of milk brought into Blackburn were taken and examined for the presence of Tubercle bacilli. In three of these samples Tubercle bacilli were found, this being a percentage of 3.26.

The Veterinary Inspector paid 157 visits to 82 farms, of which three were outside the Borough, and examined the udders of 2,680 cows. Six cows affected with Tuberculosis of the Udder were discovered, being a percentage of 0.22.

The number of cows housed within the Borough is approximately 1,500. The number of cows discovered which were affected with Tuberculosis of the Udder being 3, the percentage is 0.2.

The other three tuberculous cows found on farms situated outside the Borough, were discovered because bacteriological examination had shown the presence of Tubercle bacilli.

All the six cows which were found to be affected with Tuberculosis of the Udder were slaughtered at the Public Abattoir.

In five of them the Veterinary Inspector was able to detect the presence of Tubercle bacilli in the milk microscopically, and thus avoid the necessity of waiting three weeks at least for the result of the inoculation test.

In addition to the six tubercular udders, an additional 101 cows showed some abnormality of the udder, differentiated as follows:—

- 6 non-tubercular induration.
- 34 atrophy of one or more quarters.
- 10 mastitis.
- 51 minor lesions.

29. *Public Health (Milk and Cream) Regulations.* Three hundred and forty-one samples of milk and one of fresh cream were examined for preservative; none was found. Two samples of preserved cream were examined, and the amount of preservative found did not exceed that stated on the label.

30. *Milk (Mothers and Children) Orders.* Considerable attention has been given to the administration of these Orders which, in the original (February, 1918), authorised the Corporation to provide milk and food for necessitous, nursing and expectant, mothers, and milk for children under five years of age. An amendment issued in January, 1920, disallowed the provision of food, and a further amendment in March, 1921, reduced the amount of milk allowed to children to one pint, except in cases of children aged three to eighteen months, when an additional half-pint may be given if it is certified by the Medical Officer of Health or the Medical Officer of an Infant Consultation to be essential. Milk is now allowed to expectant mothers only in the last three months of pregnancy, and milk cannot be allowed for children aged three to five years except on a medical certificate. There have naturally been a large number of applicants.

especially during the latter part of the year when there was so much unemployment in the cotton trade. The large number at the beginning of the year was due to the Moulders' strike.

Each case is investigated fully, generally by a Health Visitor, and I must point out that this investigation work occupies much time which can ill be spared from her proper duties of giving advice in Mothercraft. An application form giving full details of income, nature of work, and address of employer is required, and it must be signed by the father of the child or the husband of the expectant or nursing mother; as it was found when mothers filled the forms that generally they knew only the amounts their husbands gave them and not the husbands' earnings, which, when obtained from the employers, sometimes showed a very substantial margin.

The following income limit was adopted in August, 1920 :—

“ The total family income is taken, and there is deducted from it the rent and contributions to clubs and insurances. The remainder is divided by the number of persons in the family resident at home. If the income, after deducting rent, etc., is 6/- or less per person per week, the milk is granted free of charge; if the income is between 6/1 and 8/- per head per week, the milk is granted at quarter-price; if 8/1 to 10/-, at half-price; and if 10/1 to 12/-, at three-quarter-price.” Generally the milk is granted for two weeks at a time, but at holiday time occasionally a grant is made for three weeks. At the end of that time the applicant is asked to fill up a further form of application which states whether or not there has been any change in the financial circumstances of the household, and certifies that the child or mother for whom the milk was supplied has actually consumed it.

Milk from a Dairyman, or dried milk from the Infant Welfare Centres, are supplied in accordance with the requirements of the individual cases. In order to avoid duplication,

no assistance is given to families receiving relief from the Guardians, and information is interchanged. Samples of the milk delivered by dairymen have been analysed and were all satisfactory. In the majority of the cases the fathers of the children are dead, disabled, ill, or unemployed, but in a few where the family is large the case comes within the income limit, and milk is supplied for the young children at reduced prices, or even free, although the man is working full time at his usual occupation. In these cases the supply of milk may go on for months and is virtually a grant in aid of parentage.

There were 73 cases on the books on 1st January, 1920, 180 new applicants during the year, and 58 were receiving assistance on the 1st January, 1921, when in 43 milk was being granted free, in 12 at quarter-price, two at half-price, and one at three-quarter-price. During the financial year ended 31st March, 1921, the total cost of assistance under these Orders in Blackburn was £698; this includes £320, the value of dried milk supplied at the Centres.

31. *Meat.* Meat inspection is carried out by the Veterinary Inspector, Mr. Burndred; who is the Chief Meat Inspector, and by the Assistant Meat Inspector, Mr. Goodman. There is a public abattoir which is fully occupied. The number of beasts, calves, and pigs slaughtered there during 1920 was 15,354. Two hundred and eight of the animals, or a percentage of 1.35, were tuberculous. In 53, or 25 per cent., of the tuberculous carcasses the disease was so advanced that rejection of the whole carcass was necessary. Taking cows alone, 30 per cent. of those found tuberculous had to be totally rejected; 41 of the 208 tuberculous animals were affected with Tuberculosis of the Lungs only. In Appendix 13 (Page 98) it will be seen that of the 2,982 cows slaughtered at the Abattoir, 9 had Tuberculous Udders. This includes the 6 mentioned in Section 30 which were discovered as a result of bacteriological examination of the milk supply or of the Veterinary Inspector's routine inspections of the cows. These six were all supplying tuberculous milk to the public of Blackburn at the time of their discovery.

Apart from Tuberculosis, 884 diseased carcasses were found at the Abattoir. Two hundred and thirteen had to be totally destroyed as unfit for human food. Particulars of the conditions necessitating condemnation will be found in Appendix 13 (Page 98).

32. *Private Slaughter-Houses.* The following Table shows that there were 9 registered private slaughter-houses in the town at the end of the year :—

	In 1914.	Jan., 1920.	Dec., 1920
Registered	10	9	9
Licensed	—	—	—
	—	—	—
Total	10	9	9

Notice is not given as to when animals are to be slaughtered in these private slaughter-houses, but as far as is known, notice is given immediately disease is discovered.

With the exception of the Co-operative Society, who do part of their slaughtering at the Public Abattoir and part at a private slaughter-house, there is very little slaughtering except in the Public Abattoir; and early in 1921 five of the remaining private slaughter-houses were closed by arrangement with the owners, and in another two the right to slaughter had lapsed.

33. *Other Work in connection with Wholesomeness of Food.* In Blackburn there are approximately 121 persons who sell meat in retail shops and 400 who sell fish. All their establishments are visited regularly; particulars of the visits and of the amount of unsound food surrendered are given in Appendix 14 (Page 102). In no case was there wilful exposure for sale of unsound or unwholesome food, and no action under the Public Health Acts was necessary.

No case of food poisoning was reported during the year.

Food preservatives are used to a certain extent in sausages, especially during the hot weather. It is a fairly

general practice for butchers to dust preservative during the hot weather on to freshly-slaughtered carcasses, especially in such places as the neck, where retention of blood might cause early putrefaction. It was found, on analysis of the preservative generally used, that it contained an undue proportion of arsenic derived from the crude products, but a purer form of borax is now used.

It is important that butchers, fishmongers and grocers should screen adequately all meat, fish, lard, butter, margarine, ham, bacon and prepared meats, from dust, particularly that of the streets, and in summer-time from flies, and should give most precise instructions to all engaged in the delivery of meat or fish that it should be properly protected from dust, dirt, or other contamination. As bread is a food which is eaten without cooking, the premises and utensils used by bakers should be kept scrupulously clean, and those engaged in the delivery of bread should handle it as little as possible. The best remedy would be the wrapping of loaves in sealed paper bags.

Shellfish. The Blackburn Corporation Act, 1908, gives the Authority power to prohibit the sale in the Borough of shellfish which are likely to cause disease. Samples of mussels from Piel, near Barrow, were examined bacteriologically and found to be unfit for food; it was arranged, therefore, that no more should be sent to the town. The importation of shellfish from certain other districts was also prohibited.

34. *The Sale of Food and Drugs Acts.* The Public Analyst is Mr. W. H. Roberts, M.Sc., F.I.C. Appendix 15 (Page 103) shows that 422 samples were taken, 341 of which were of milk. Altogether 42 samples, or 7.6 per cent., were reported to be adulterated or not up to the standard. With 9 exceptions all the samples of milk were obtained in accordance with the procedure prescribed by the Acts; 163 of the other samples were taken informally. This is necessary because the amount required for analysis after the sub-division of the sample into three parts is often larger than that usually purchased by an ordinary customer. Small

quantities purchased by an agent are sent for analysis, and thus a knowledge is obtained of any adulteration which is being practised. This procedure of purchase by an agent has lately been used for procuring samples of milk, and it has been found that a larger percentage of adulterated samples is obtained than when the Inspector makes the purchase himself. Twenty-six of the milk samples, or 7.6 per cent., were not up to the standard prescribed by the Regulations of the Board of Agriculture. These include 18, or 5.2 per cent., of the total in which the deviation from the standard was marked.

The following summarises the work done with regard to milk sampling for 1920 and the previous 9 years :—

Year	No. of Samples	No. not Genuine	% Not Genuine	No. of Prosecutions	No of Con-victions	Amount of Fines and Costs.		
						£	s.	d.
1911	250	45	18	12	12	27	11	0
1912	440	68	15.4	12	12	35	17	0
1913	380	21	5.5	5	5	14	6	0
1914	351	21	6.0	7	7	25	11	6
1915	337	30	8.9	12	12	31	17	6
1916	362	18	5.0	10	9	36	0	0
1917	273	19	7.0	11	11	37	7	0
1918	362	15	4.1	8	8	47	15	0
1919	387	28	7.2	14	14	42	0	0
1920	341	26	7.6	11	10	33	5	0

On eight occasions a milk can, and on 11 margarine, were not properly labelled; in each case a warning letter was sent. If the result of the analysis of an informal sample shows that it is adulterated, the Public Analyst telephones at once, and a formal sample is obtained. Samples of milk in course of delivery in Blackburn were taken from farmers

resident outside the Borough as well as from Blackburn farmers. The average composition throughout the year of all the samples of milk taken was : fat, 3.64 per cent. ; non-fatty solids, 9.04 per cent. ; this being well above the limits of 3 per cent. fat and 8.5 per cent. non-fatty solids imposed by the Board of Agriculture. These figures of 3.64 and 9.04 include samples which were considerably below the limit, and in connection with which legal proceedings were taken.

Appendix 16 (Page 104) shows the action taken with regard to all the samples not up to the standard. The total amount of the fines was £33 5s. It may be pointed out that with milk at 8d. a quart, a fine of £2 for selling milk to which 10 percent. of water has been added can be recouped by selling 150 gallons of the "milk." It is not unusual for a dairyman to sell 50 gallons of milk every day.

REPORT OF THE VETERINARY INSPECTOR ON WORK DONE UNDER THE DISEASES OF ANIMALS ACTS AND ORDERS FOR THE YEAR 1920.

35. " Blackburn continued to be comparatively free from the scheduled diseases.

Foot and Mouth Disease continued to made periodic appearances in England throughout the year, but, fortunately, Blackburn escaped any serious consequences of its ravages.

Rabies in dogs, which was eradicated from the United Kingdom in 1902, but which, unfortunately, was re-introduced in 1918, continued during the year.

The Tuberculosis Order of 1914, which was suspended in August, 1914, still remained in suspension throughout the year.

The resumption of the traffic in decrepit horses to the Continent, for slaughter as human food, necessitated the

veterinary examination of animals before shipment under the Exportation of Horses Act of 1914, and the more efficient supervision of railway sidings under the Horses (Importation and Transit) Order of 1913.

A new Glanders or Farcy Order was introduced during the year. This disease is now nearing extinction in Great Britain.

A new Sheep Scab Order, together with a Double Dipping Order, was introduced during the year.

Foot and Mouth Disease. A heifer recently imported from Ireland, and housed at a farm within the Borough, was reported by the owner to be showing symptoms suspicious of Foot and Mouth Disease. The premises were visited and the animal examined by me. I considered the symptoms to be highly suspicious, and notified the Ministry of Agriculture, at the same time taking the necessary steps for isolation and disinfection. A Veterinary Inspector of the Ministry kept the animal under observation for five days, and at the end of that time was able to say that Foot and Mouth Disease did not exist.

Rabies. There were no suspected cases in Blackburn.

Glanders and Farcy. No cases were reported or discovered.

Sheep Scab. The approximate number of 39,345 fat sheep were brought into Blackburn during the year. No case of Sheep Scab was reported or detected.

Swine Fever. No cases occurred in the Borough.

Anthrax. The carcass of a cow brought from a farm outside the Borough to a knackery in the Borough was suspected by the knacker to be affected with Anthrax. He reported to me, and on making a microscopical examination of the blood, I found Anthrax bacilli. The case was reported to the Ministry of Agriculture and, in the meantime,

the carcase was cremated at the Audley Destructor and the premises disinfected. The persons who handled the carcase were kept under observation and did not develop the disease. The case was confirmed later by the Ministry of Agriculture.

In addition to the above, microscopical examination of material was made by me from two beasts, fifteen sheep and seven pigs, with negative results.

The following figures show the cases of Anthrax discovered and reported in Blackburn during the last ten years :—

Years.	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920
Blackburn Cases	1	0	0	1	0	0	0	0	0	0
Outside Cases (Introduced)	1	1	2	0	1	0	1	1	0	1
Totals.....	2	1	2	1	1	0	1	1	0	1

Parasitic Mange. There were 14 reports of outbreaks involving 15 animals, and 13, involving 14 animals, were positive; 11 were reported by the owner or his veterinary surgeon, 2 reported by the Police, and 1 was discovered by me.

Ten of the above animals were kept under the restrictions imposed by the Parasitic Mange Orders of 1911 and 1918, until cured; the remaining four being destroyed. There were two prosecutions for offences under the Orders, and convictions obtained.

CATTLE MARKET.

The Cattle Market has been regularly cleansed and disinfected in accordance with the provisions of the Markets and Sales Order of 1910, after each of the two markets held weekly.

The approximate number of animals exhibited for sale in the Cattle and Pig Markets is :—

	Cattle	Sheep	Calves	Pigs	Horses
1920	9,341	941	2,258	530	365

The figures for the ten preceding years are :—

1919	8,325	17,223	2,188	163	269
1918	6,424	23,043	1,832	111	126
1917	5,599	503	2,530	284	40
1916	4,045	126	—	98	2
1915	5,939	126	—	98	2
1914	6,314	420	—	36	29
1913	6,174	358	—	42	97
1912	4,725	399	—	11	191
1911	7,476	893	—	40	191
1910	7,697	544	—	18	151

During the years 1918 and 1919 the market was a distributing centre under the Food Control Orders, and that accounts for the large increase in the numbers of sheep exhibited there during that period.”

E. G. BURNDRED, M.C.,

M.R.C.V.S., D.V.H.,

Veterinary Inspector.

Prevalence of and Control over Infectious Diseases.

36. *Zymotic Diseases.* During the year there were 77 deaths from the seven principal zymotic diseases, which are Smallpox, Measles, Whooping Cough, Diphtheria, Scarlet Fever, Diarrhœa, and Fever (including Typhus, Enteric and Typhoid). This is a death-rate of 0.5 per thousand of the population, and for an industrial centre is very satisfactory. For each of the diseases mentioned (except Diarrhœa), Blackburn's death-rate is less than that of the 96 great towns. The number of deaths from zymotic diseases during the past seven years is shown in Appendix 5 (Page 85). The number of cases of infectious diseases notified during the year is given in Appendix 17 (Page 106). There was no notification of Smallpox, Cholera, Plague, Typhus Fever, Trench Fever, Relapsing or Continued Fever, Cerebro-spinal Fever, or Acute Polio-Encephalitis. Appendix 18, page , gives the number of notifications of infectious diseases received each year since 1903.

37. *Scarlet Fever.* One hundred and eighty-one cases were notified, being a rate of 1.3 per thousand of the population. The number of cases shows a tendency to increase, having been 96, 150, and 136 in 1917, 1918, and 1919 respectively. We are apparently on the upward wave of the cycle, and we can only hope that we shall not reach the figures of former epidemics such as 1,013 cases in 1909, 795 in 1910, 704 in 1914, and 460 in 1915. There were three deaths, being a case-mortality rate of 1.6 per cent., showing that the disease is not nearly so serious as it was 20 to 30 years ago, when the fatality was from 10 per cent. to 20 per cent. The death-rate was 0.02 per 1,000 of the population, compared with 0.04 in the 96 large towns. Eighty-five per cent. of the patients were removed to hospital.

Multiple and Return Cases. In each of nine families two cases of Scarlet Fever occurred; in each of three families there were three, and in two other families four cases. In these cases the second, third, or fourth member of the family

was infected by the first case, who had often been removed to hospital, but who, before leaving home, had infected the other member or members of his family. There was during 1926 only one "return case," that is, a case of Scarlet Fever occurring in another member of the same family within three weeks after a patient has returned from hospital. The infecting patient had no discharges and had, to all outward appearances, fully recovered. He was apparently a "carrier" of the disease, and we must await discovery of the causative organism before such carriers can be detected.

38. *Diphtheria*. The number of cases was 69 compared with 30 in 1919 and 57 in 1918, both of which were years of exceptionally low prevalence. There were 10 deaths, giving a case-mortality rate of 14.5 per cent., which is much too high for a disease which can be cured if anti-toxin is given on the day of onset. Seven of the deaths occurred in the 57 cases admitted to hospital and three in the twelve nursed at home; four of the hospital deaths occurred within 48 hours of admission. The moral is that parents must call in a doctor at the onset of the disease, and not wait until the apparently trivial sore throat becomes obviously serious. The death-rate from Diphtheria per 1,000 of the population was 0.07 compared with 0.15 in the 96 large towns. One hundred and thirteen throat swabs were sent in by private practitioners, and in 15 the diphtheria germ was found. Anti-toxin for diphtheria patients is kept at the Town Hall, the Central Police Station, and each of the three Branch Police Stations; and during 1920, 133,000 units were given to 22 doctors for the use of their patients.

39. *Smallpox*. There has been no notification of Smallpox in Blackburn since 1910, but, owing to the frequent importation of this disease into the country, it behoves us to be ever watchful. The Vaccination Officer informs me that of children born in Blackburn in 1920 only 27% had been vaccinated up to the 21st March, 1921, and not less than 55% had secured exemption. Should a case of Smallpox be introduced into the town, the unvaccinated members of the community will form such a large susceptible group

that prevention of the spread of the disease will be a matter of the utmost difficulty.

40. *Enteric Fever.* There were five notifications of Enteric Fever: all the patients were admitted to the Corporation Hospital, where they made a good recovery. The diagnosis was confirmed bacteriologically in four of the five cases treated at the Hospital, and before their discharge it was ascertained that they were not carriers of the typhoid organism. The other case turned out to be encephalitis lethargica. In two of the four genuine cases the patient was infected outside the town: in the other two infection took place in Blackburn, but the exact source of infection could not be ascertained.

41. *Measles.* During 1920 Measles caused 18 deaths, compared with none in 1919, 39 in 1918, and 21 in 1917. The death-rate was 0.12 per 1,000 of the population compared with 0.27 in the 96 large towns. Notification of Measles is no longer compulsory, but information as to a certain number of cases is obtained from the Teachers, Health Visitors and School Attendance Officers. In this way knowledge was obtained of a sharp outbreak of the disease which occurred in the spring of the year. Altogether 1,446 cases were heard of and visited, appropriate advice being given by a Health Visitor to the parents. The closure of 20 schools was necessary.

The following Table, which gives the age-distribution of the notifications and deaths, shows that at ages under two years, when owing to its great fatality advice as to the dangers of Measles is most needed, we have now very scanty information as to the cases:—

MEASLES, 1920.

	0—1	1—2	2—5	6—7	8—10	11—15 years.
Notifications ...	3	21	728	285	25	8
Deaths	10	3	3	2	—	—

Arrangements have been made for the admission to the Corporation Hospital of cases of Measles complicated by

Pneumonia, and also for the District Nurses to nurse in their homes when necessary those patients for whom hospital treatment is not provided. The necessary precautions will, of course, be taken to prevent the spread of infection.

42. *Whooping-cough*. Whooping-cough caused only one death during 1920, compared with 11 during 1919, 26 in 1918, and 11 in 1917. The death-rate was 0.01 per 1,000 of the population, compared with 0.11 in the 96 large towns.

43. *Acute Polio-myelitis*. There was only one notification of this disease, a girl aged five years. Both legs were involved: she has recovered, but there is still marked weakness of each leg.

44. *Encephalitis Lethargica*. Two cases were notified and one case was notified as Enteric Fever. Two of the patients were girls aged 16 and 18 years and the other a man aged 45 years. All made a complete recovery, although in the case of the man convalescence was very slow.

45. *Erysipelas*. Fifty-nine notifications of this disease were received; there was no death.

46. *Influenza*. There was another wave of Influenza in March, April, and May. Throughout the year there were 59 deaths, compared with 187 in 1919 and 338 in 1918. The death-rate was 0.42 per 1,000 of the population, compared with 0.28 in the 96 large towns.

47. *Pneumonia*. This disease caused 178 deaths, or 1.27 per 1,000 of the population. The deaths in 1919 numbered 210, and, in 1918, 266: 158 notifications of acute primary or acute influenzal pneumonia were received. Since the 1st December, 1920, it has been possible to offer, on behalf of the Corporation, the services of the District Nurses. During the month 172 visits were paid to 14 patients.

48. *Malaria*. There were 18 notifications all relating to ex-soldiers who had contracted the disease abroad. There is no record of anopheline mosquitoes which convey malaria

from person to person having been found in the immediate neighbourhood of Blackburn.

49. *Diarrhœa*. The deaths from this disease numbered 45, which is a death-rate of 0.32 per 1,000 of the population. Last year the deaths numbered 26, and, in 1918, 27. It is unfortunate that the deaths from this cause are increasing: the disease is of "filth" origin, that is to say, it is caused by the entrance into the body, generally with food, of germs which are found in excrement. A common mode of transfer of the germs from filth to food is on the hairy feet of flies. The next hot summer will be a testing time when it will be shown whether our sanitary arrangements are more satisfactory than they were in 1911, when the deaths from *Diarrhœa* numbered 212; they numbered 140 in 1913. Since then the summers have been cool, and consequently flies have been less numerous.

The epidemic form of the disease generally occurs in children under two years of age. There were 35 deaths under that age in Blackburn, being a rate of 12.3 per 1,000 births, compared with 10.4 in the 96 great towns. It is proposed to ask medical practitioners during July, August, and September, to notify voluntarily to the Medical Officer cases of Summer *Diarrhœa* in children under two years of age in which the services of the Health Visitors would be useful and welcome.

50. *Cleansing of Verminous Persons*. There is a well equipped Cleansing Station at the Throstle Street Destructor, but it was not put into use until October, 1920, and from then until the end of the year it was used on 22 occasions for the cleansing of verminous children (and in some cases their parents) and for the treatment of families suffering from Scabies ("the itch").

51. *Rats and Mice Destruction Act*. From August, 1920, the Corporation employed a Rat-catcher whose duty it was to destroy rats on Corporation property. From then until the end of the year he paid 364 visits to premises infested by rats, laid 6,282 squill baits, trapped 272 rats, using spring and wire traps and varnish trays, and caught 472 rats by

other means such as ferrets and dogs. One of the Sanitary Inspectors is charged with the duty of administering this Act, and 92 notices or letters have been served upon the occupiers of buildings or land alleged to be infested with rats.

52. *Disinfection.* There are two Washington Lyon disinfectors, one at the Throstle Street destructor and the other at the Corporation Hospital. Particulars of the work done at Throstle Street and in disinfecting houses is set out in Appendix 19 (Page 108). It was the practice to give disinfectant to those who called at the Town Hall for it, but as it is felt that it is better to rectify the cause of a bad smell and not cloak it by another, the custom is being discontinued unless disinfectant is needed to kill the germs in infectious discharges, for example, in tuberculous sputum and in typhoid excreta.

DISEASES CONTRIBUTING LARGELY TO THE DEATH-RATE.

53. *Cancer.* During the year there were 170 deaths, or 1.21 per 1,000 of the population, compared with 165 deaths in 1919 and 131 in 1918; it is the largest number of deaths from Cancer ever recorded in the town. Leaflets have been distributed widely, describing the first stages of Cancer in its commonest locations, and recommending that medical advice be sought on the first appearance of any suggestive sign or symptom.

54. *Bronchitis* caused 231 deaths, compared with 269 in 1919, and 189 in 1918.

55. *Heart Disease.* This disease caused 215 deaths in 1920, 269 in 1919, and 214 in 1918: the ultimate cause of many of these deaths was rheumatism.

TUBERCULOSIS.

56. *Deaths.* The number of deaths caused by Tuberculosis during 1920 was 111: the death-rate was 0.79 per thousand of the population, compared with 1.13 in 1919, 1.46 in 1918, and 1.36 in 1917; it is the lowest rate ever re-

corded in the Borough, and compares with a Tuberculosis death-rate throughout England and Wales during 1820 of 1.12.

57. *Pulmonary Tuberculosis.* During the year 82 deaths were certified to be due to Pulmonary Tuberculosis, being a death-rate of 0.58 per thousand of the population. This also is the lowest rate ever recorded in Blackburn, the previous minimum having been 0.65 in 1913. The maximum rate recorded since 1881 was in 1883, when it was 1.90; in 1919 the rate was 0.92; in 1918, 1.13; and in 1917, 1.05. During the previous five years war conditions (including the influenza epidemics) have been responsible for a heavy mortality from Tuberculosis, and by eliminating certain sufferers this may have contributed to the lowness of the rate now recorded. We cannot yet be said to have reached normal conditions of life, so that it is impossible to state how post-war conditions will re-act on the population as regards their liability to Tuberculosis. It should also be remembered that the figures for any year cannot be taken as typical, as the element of chance is responsible for fluctuations year by year.

58. *Notification.* Eighty-eight persons were notified as suffering from Pulmonary Tuberculosis. Their age and sex distribution will be found in Appendix 20, page . The numbers notified in the three preceding years were 124, 176, and 131, respectively, so that the incidence of new cases appears to be declining in a manner similar to the numbers of deaths. Information in respect of 8 cases was first obtained from the death returns, whilst 38 others were notified less than three months before the fatal termination of the illness. It should be remembered that the average duration from first onset of illness to death in a case of Tuberculosis is three years, but with regard to more than half the fatal cases in Blackburn information was received too late for us to take any effective steps either to ameliorate the condition of the patient himself or to prevent him communicating his disease to those around him. Various explanations of this failure in our work are advanced: that a few medical men fail to observe their Statutory duty to notify is clear, but the main

cause is undoubtedly in the patient himself and the character of the disease. Unfortunately the onset is not heralded by any grave symptoms which alarm the patient. From good or moderate health he retrogresses steadily until often only when he reaches the third stage does he consult a doctor. During this period, which may extend for a year or two, he is but vaguely conscious of the impending disaster and seeks assistance only when finally compelled to give up work. How little the patient himself appreciates the situation is shown by the fact that often he fully expects after a month's stay in a Sanatorium to be restored to perfectly robust health. It will be advisable in any amendment of the Regulations relating to the notification of Tuberculosis to require *every* Doctor who is consulted by a tuberculous patient to notify him independently of whether he has reason to believe that the case has already been notified by another Doctor.

At the end of 1920, 704 cases of Pulmonary Tuberculosis were known to the Health Department, and 241 of Non-Pulmonary Tuberculosis.

59. *Municipal Dispensary.* Early in 1914 it was decided by the Blackburn Corporation to provide a Municipal Dispensary in the town for anti-Tuberculosis work. Attempts were made to find an existing building which could be adapted for that purpose, but this was unsuccessful, the difficulty being that no building was available which would provide adequate accommodation and at the same time possess a fairly central situation. Finally it was decided to erect a building and a site was obtained at the lower end of Duke Street, opposite the Blakey Moor School, on a piece of land which was the property of the Corporation. Plans were prepared by Mr. Stubbs, the then Borough Engineer, in consultation with Dr. Hibbert, who was Medical Officer of Health, and were approved by the Local Government Board in 1914.

The building reflects great credit on its designers, and is for its size one of the best in the country. The building was completed in the summer of 1915: it consists of a brick building of one storey occupying a corner of Duke Street and railed off from the road; the small piece of ground attached

is planted with shrubs. The floors are of a special form of concrete : the walls are smoothly varnished and all corners are rounded, thus facilitating thorough cleansing. All windows are made to open widely ensuring adequate ventilation ; the heating arrangements consist of a central boiler in the cellar from which hot water circulates to radiators in the various rooms. In addition there is a gas fire in the Medical Officer's room and one in the Nurse's room. The waiting room occupies the front of the building and from it open two corridors, one on each side, which lead to the dressing rooms. One side is for male patients, the other for females. Further on is the Nurse's room where patients are weighed, temperatures taken and medicines dispensed. Opening off this room is a small annexe in which the records are kept and clerical work is carried out. At the back of the building is the Medical Officer's room where patients are examined. There is adequate lavatory accommodation for both sexes and for the staff.

A caretaker's house consisting of four rooms and bathroom adjoins the Dispensary.

Owing to shortage of staff as a result of the war, the building was not put into use until the 15th July, 1919. Even now full use is not being made of the Dispensary : as the centre of anti-Tuberculosis work in the town, its functions should be to serve as :—

- (1) A receiving house and centre for diagnosis ;
- (2) A clearing house and centre for observation ;
- (3) A centre for curative treatment ;
- (4) A centre for the examination of contacts ;
- (5) A centre for after-care ;
- (6) An information bureau and educational centre.

The reasons why the work remained undeveloped are :—

(a) The Tuberculosis Officer had in addition to his Dispensary work to attend the Child Welfare Clinics throughout the year, and for the first six months of the year he acted as Medical Officer of Health. In February, 1921, the vacancy for a Maternity and Child Welfare Medical Assistant was filled, and the Tuberculosis Officer now devotes five full sessions per week to Dispensary work, the remainder of his time being occupied in Tuberculous and other work at the Corporation Hospital.

(b) During 1920 there was no Nurse or clerk at the Dispensary, and the impossibility of doing good work under these circumstances will be obvious. In January, 1921, a clerk was taken over from the Insurance Committee's staff in view of the impending transfer of the administration of Sanatorium benefit to the Corporation, but a Tuberculosis Dispensary Nurse has not yet been appointed. This is an urgent necessity, as not only would the Doctor's time be saved if a Nurse could weigh the patients and take temperatures and histories, but it is undesirable that female patients should attend a Dispensary where there is no Nurse. For the present this difficulty is overcome by arranging for a Nurse from the Corporation Hospital to attend, but when the number of hospital patients increases the Nurse cannot be spared from her duties there. Other important functions of a Tuberculosis Nurse would be the co-ordination of the visiting of Tuberculous cases by the Health Visitors. She would herself visit each case on receipt of the notification, arrange for proper isolation at home or removal to hospital, bring contacts for examination, etc.

Despite these limitations a considerable amount of work was done, as will be seen by the following table :—

TUBERCULOSIS DISPENSARY—1920.

	Males	Females	Total
No. of cases sent for opinion	102	51	153
„ „ „ diagnosis confirmed.....	59	33	92
„ „ „ „ not confirmed	36	15	51
„ „ „ for observation	7	3	10
„ „ contracts examined.....	11	4	15
„ „ „ suffering from Tuber- culosis.....	1	...	1
„ „ contracts not suffering from Tuberculosis	8	3	11
„ „ contracts for observation	2	1	3
„ „ first attendances	113	55	168
„ „ subsequent attendances	986	293	1279
„ „ patients visited at their homes by the Tuberculosis Officer	64	23	87

CASES RECEIVING DISPENSARY TREATMENT.

	Insured.		Non-Insured.		Totals.	
	Beginning of Year	End of Year.	Beginning of year.	End of Year.	Begin- ning of Year.	End of Year.
Pulmonary	73	79	9	8	82	87
Non- Pulmonary	1	...	4	2	5	2
Total	74	79	13	10	87	89

60. *Residential Institutions.* The following residential institutions are available for patients from the County Borough area :—

(a) Meathop Sanatorium :—9 beds for males, 6 beds for females.

(b) Blackburn Corporation Hospital :—15 beds for males, 11 beds for females.

The 15 Sanatorium beds are reserved for early cases, and the 26 beds in the Corporation Hospital are used mainly for the more advanced cases. In the past there has been amongst some patients a certain prejudice against entering the Corporation Hospital: the idea was prevalent that this Institution was for the treatment of hopeless or dying cases only, and the tendency was for patients who were not considered suitable for admission to Meathop but in whom great improvement could have been obtained by a course of hospital treatment to refuse such treatment.

With a view to overcoming this erroneous impression, important changes have been made during the year in the administration of the Open-Air Ward of the Hospital.

(a) The ward is now being conducted as far as is practicable on the lines of a sanatorium: for those patients who are physically fit, a definite programme of graduated exercises and work is laid down as an essential part of the treatment. When the weather permits, out-door exercise in the grounds is prescribed, and during the winter and inclement weather in-door occupations are provided. Tuition in basket making, toy making, and raffia work has been provided, and although the scheme has not been in operation for long the results are most encouraging.

(b) It is now the custom to admit *all* cases of tuberculosis to the Corporation Hospital and to transfer suitable cases to the Meathop Sanatorium. This encourages patients to accept hospital treatment in the hope that they will ultimately be fit to proceed to Meathop.

I believe that the reluctance to enter the Corporation Hospital for treatment is thus being gradually overcome. Appendices 20 and 21 (Pages 109 and 110), give particulars of the institutional treatment provided during the year. It has been impossible this year to differentiate the cases into those with and those without demonstrable Tubercle bacilli in the sputum, but this will be done next year, when particulars, it is hoped, can be given of the present condition of cases discharged from Institutions in previous years.

It was intended to erect a Sanatorium to accommodate persons suffering from all stages of Pulmonary Tuberculosis, but difficulty was experienced in obtaining a suitable site, and later the financial stringency caused the indefinite postponement of the proposal.

The Medical Officer of Health is the Medical Superintendent of the Corporation Hospital, and the Tuberculosis Officer is the Resident Medical Officer.

61. *Co-operation with other Institutions.* During the year there has been no definite scheme of co-operation with the General Hospitals, namely, the Blackburn Royal Infirmary and the Queen's Park Hospital of the Blackburn Guardians, but it is known that a large number of cases have been treated at these hospitals. Much valuable work has been done in the treatment of Pulmonary cases in children at the Queen's Park Hospital, and in both hospitals operative treatment on surgical cases has been carried out.

All definite and suspicious cases of Tuberculosis found at the School Clinics, or at the Child Welfare Centres, are referred to the Tuberculosis Dispensary.

62. *Co-operation with General Medical Practitioners.* Medical practitioners are always encouraged to co-operate with the Tuberculosis Officer and are asked to send their doubtful cases for diagnosis. During the year private practitioners submitted 332 specimens of sputum for examination, and in 58 Tubercle bacilli were found. During 1920 the periodical reports on insured persons receiving domiciliary

treatment were not insisted upon and very few were received, but under the new arrangements for the administration of Sanatorium benefit it is hoped that there will be closer association between the panel doctors and the Tuberculosis Officer.

63. *Observation Cases.* Doubtful cases are re-examined periodically at the Tuberculosis Dispensary until a definite diagnosis is made. In a few cases patients have been admitted to the Corporation Hospital for a short period of observation.

64. *Examination of Contacts.* In view of the importance of home infection, the undoubted presence of Tuberculosis "nests," and the hopelessness of waiting until symptoms and signs of the disease are obvious before commencing treatment, the searching out and examination of contacts is the most hopeful part of our present anti-Tuberculosis campaign, and it is deplorable that owing to lack of staff it has been found impossible to carry out this work with any degree of adequacy. Fifteen contacts were examined by the Tuberculosis Officer, and one was found to be tuberculous. The scheme for examining, at school, children who come from a home where there is a notified case of Tuberculosis has been continued: 485 contacts were examined by the Assistant School Medical Officer during 1920, and 3 were found to be infected with the disease.

65. *Dental Treatment.* During the year no dental treatment was provided for tuberculous patients, but early in 1921 a Municipal Dentist was appointed, part of whose duties will be the dental treatment of tuberculous patients.

66. *Home Nursing.* On the 1st December a scheme for the home nursing of Tuberculous cases by the District Nurses was put into operation, and during the month 150 visits were paid to 8 patients.

67. *Extra Nourishment.* During 1920 extra nourishment for patients living at home was supplied only to ex-Service men, and that was through the War Pensions Committee. The Insurance Committee, owing to lack of funds, have not

granted extra nourishment since February, 1917. This benefit has never been available for the non-insured.

68. *Other Anti-Tuberculosis Work.* No arrangements for after-care or regular scheme for finding employment existed during the year, but by private effort several patients were helped to secure suitable work. The Charity Organisation Society have for some years maintained a Window Cleaning Department in which ex-Sanatorium patients are employed.

No shelters were supplied for use in the homes of the patients : in very few instances is there the necessary accommodation for their erection.

The Health Visitors paid 1,171 visits to the homes of Tuberculous patients : 286 were ineffective as the patients could not be seen ; 190 were first visits and 695 re-visits.

Two hundred and thirty rooms were disinfected after removal or death of a tuberculous occupant.

69. *Non-Pulmonary Tuberculosis.* During the year 29 deaths were certified to be due to forms of Tuberculosis other than Pulmonary : this included 14 from Tuberculous Meningitis. Thirty-eight cases of Non-Pulmonary Tuberculosis were notified, namely : 10 glands, 8 abdominal, 10 tuberculous meningitis, 5 bones and joints, 2 lupus, 3 eyes. No provision is made by the Corporation for the institutional treatment of these cases, though many of them are dealt with by the Guardians or at the Royal Infirmary. In the special institutions which deal with these patients on Sanatorium lines over 80 % of the cases of tuberculosis of the hip, knee or spine are restored to such health that they can become self-supporting citizens. The course of treatment may last from one to three years and is therefore costly, but the results are so beneficial from the point of view of the community that many authorities are now providing these facilities for the inhabitants of their areas.

VENEREAL DISEASES.

70. *Deaths.* Only 5 deaths were certified to be due to venereal diseases, all being in infants under one year of age. There were also three deaths caused by General Paralysis of the Insane, and one by Locomotor Ataxy, both of which diseases are caused by Syphilis. These returns give a most erroneous conception of the killing capacity of the venereal diseases, and until we have a system of confidential certification of the cause of death, no true statement of the number of deaths caused by venereal diseases can be made.

71. *Treatment Centre.* Increased use was made during 1920 of the arrangements for the diagnosis and treatment of venereal diseases at the Royal Infirmary. The attendances (including 530 for irrigation only) numbered 6,459, compared with 4,317 in 1919, and 1,608 in 1918. There is an afternoon and an evening session weekly for each sex. Towards the close of the year arrangements were made for patients requiring intermediate treatment for Gonorrhœa to attend at times when they could do so without losing work. These attendances for irrigation or swabbing only are under the supervision of a trained orderly in the case of men and a specially trained nurse in the case of women.

To everyone's regret, Dr. Rigby resigned his office as one of the Medical Officers of the Clinic on receiving an appointment under the Ministry of Health in October. It has now been arranged that Dr. Cran Duthie shall be responsible for the work amongst men, and the Woman Assistant Medical Officer of Health (who is in charge of the Maternity and Child Welfare Clinics) has been appointed by the Board of Management of the Infirmary as Medical Officer of the Clinics for women and children. This linking of the venereal diseases work with the maternity department, which receives records of stillbirths and of ophthalmia neonatorum, and with the Infant Consultations where syphilitic infants are seen, is of great value.

Appendix 22 on page 110 gives full details of the work done at the Clinics during the year.

It will there be seen that 933 patients made 5,929 clinic attendances, an average of 28 at each of the four clinics held weekly. There were 680 male and 269 female patients, of whom 382 men and 204 women were suffering from Syphilis; 58 men from Soft Chancre, and 161 men and 18 women from Gonorrhœa. 443 men and 167 women attended for the first time during 1920; 2,743 of the 5,929 clinic attendances were made by Blackburn patients and 3,144 by patients resident within the area of the Administrative County of Lancashire. The treatment centre is included in the official arrangements made by the Lancashire County Council for the treatment of their patients and they pay a proportionate cost of the expenses. There were 476 in-patient days compared with 558 in 1919.

No less than 232 patients ceased to attend before completing a course of treatment, and a further 247 after completing a course of treatment but before tests as to cure had been completed. Thus at least 24 % and possibly 50 % of the patients dealt with at the Clinic have ceased to obtain further treatment there whilst still infectious and it is very improbable that they are obtaining treatment elsewhere. It is greatly to be deprecated that the centre is being used by many patients for the purpose of obtaining relief from acute symptoms rather than for a complete cure. The Anti-Venereal Campaign was launched with two main objects :—

1. To prevent the communication of the disease from person to person.
2. To protect infected people from the common after effects of venereal diseases, such as Locomotor Ataxia, General Paralysis, Aneurism or Stricture.

To ensure both these objects the complete cure of an infected person is necessary : anything less makes our expenditure futile. We, as a community, spend money in this campaign, not to relieve the pain and discomfort of an individual who has acquired venereal disease, but to eradicate the disease so that he may for many future years engage in productive work for the national good and not be a burden to the community as an inmate of a lunatic asylum or a poor law institution. We also spend this money for the purpose of preventing him

or her from bringing into the world offspring tainted with venereal disease who will be a source of expense to us. If persons infected with these diseases will not *voluntarily* submit themselves for regular treatment until they are cured, they must do so *compulsorily*, and any movement should be supported for the notification of all persons who discontinue treatment before, in the opinion of their doctor, they are completely cured. This should apply not only to patients who attend centres but also to those who are being treated by private practitioners. Provision should be made for patients who transfer from one doctor to another or from a centre to a private doctor. Probably the threat of notification would secure a continuance of treatment: if it did not, powers would have to be obtained for compulsory treatment.

It is not recognised sufficiently often, perhaps, that a certain number of the patients, especially the women, have been infected innocently, and a moral stain does not necessarily attach itself to all those who attend the centres.

In order to improve the attendances, a non-committal letter is now being delivered in person to some of the absentees and the result is that some have resumed their treatment.

During 1920 Blackburn patients made 15 attendances at Manchester Hospitals, and, during 1919, 60 attendances. Four Blackburn patients attended the Blackpool centre.

72. The number of bacteriological specimens examined from cases or suspected cases of venereal disease was 1,161: 192 for detection of the gonococcus and 1,069 for the Wasserman re-action; no specimen was sent for the detection of spirochætes. The examinations were all made by Professor Dean at the University of Manchester; 146 of the specimens were sent by private practitioners and 40 from the Union Infirmary. Full particulars will be found in Appendix 23, page III. Arrangements have now been made for examinations for the gonococcus and for spirochætes to be made at the Royal Infirmary.

73. Salvarsan substitutes were available at the Royal Infirmary for the use of private practitioners who complied

with the requirements of the Ministry of Health, and 320 doses were supplied for use by 9 private practitioners and two medical officers of public institutions. The number of doses of salvarsan substitutes used at the Clinic was 2,235.

74. No propaganda or educational work was done during 1920, but a vigorous campaign was inaugurated early in 1921.

MATERNITY AND CHILD WELFARE.

75. *Notification of Births Acts.* The number of Births notified in accordance with the Statutes within thirty-six hours of their occurrence was 2,873 : 2,372 notifications were received from midwives, 374 from doctors, and 127 from parents; 63 births were notified twice. As the number of births registered during 1920 was 2,827, it is apparent that the requirements as to birth notification are well observed.

Of the children born in the town some 90 % are visited by the Health Visitors, the remaining 10 % occurring in families where advice on infant care and feeding would probably be obtained from other sources. There are six Health Visitors who devote almost their whole time to Maternity and Child Welfare Work, the remainder being spent in visiting tuberculous cases. A summary of their work will be found in Appendix 24 (Page 112). Each infant is visited and advice given to the mother immediately after birth, and an endeavour is made to visit also at the end of the first, third, sixth, ninth and twelfth months, thrice during the second year and subsequently at six monthly intervals until the age of five years is reached, but owing to shortage of staff this has been found impossible. Special visits at more frequent intervals are made whenever the condition of the infant demands it: altogether 20,292 visits were paid during the year.

76. *Infant Consultations and Schools for Mothers.* At the beginning of 1920 there were four Infant Consultation Centres, namely, at 51 Copy Nook, where two sessions were held each week, and at 119 Bolton Road, 26 Adelaide Street, and the Town Hall, where there was at each centre one session weekly. Despite the total inadequacy of the accommodation provided and the fact that medical attendance was of a spasmodic character, owing to the vacancy for a Mater-

nity and Child Welfare Medical Officer not having been filled, the attendances were remarkably high. Proposals had been made to purchase premises for new centres, one in the Mill Hill district and one to replace the Bolton Road Centre, but, as the attendances may number one hundred mothers and the same number of babies the accommodation necessary is very large, and as it is required in the majority of cases only for one afternoon each week the policy of purchasing premises outright was discontinued and arrangements made for the hire of church halls. A centre was started at the Griffin Parochial Hall on November 2nd, 1920, and is now firmly established. The over-crowded centres at the Town Hall and 119 Bolton Road have been transferred to the Kendal Street School and to the Nova Scotia School respectively.

The following Table shows that the average weekly attendance at the centres was 245 and varied from 41 at Adelaide Street to 62 at Copy Nook :—

MATERNITY AND CHILD WELFARE CENTRES.

	Adelaide Street.	Copy Nook.	Bolton Rd., & Nova Scotia School.	Town Hall & Kendal Street.	Griffin	Total.
Infants:—						
New cases under 1 yr.	132	233	182	209	51	807
No. of re-attendances ...	869	3545	1719	1435	228	7796
New cases over 1 yr. ...	34	23	20	30	4	111
No. of re-attendances.	768	1816	584	569	77	3814
Total attendances	1803	5617	2505	2243	360	12528
Consultations with Doctor	158	285	189	261	111	1004
Expectant Mothers:—						
No. of new cases.....	27	43	15	14	2	101
„ „ re-attendances...	88	151	36	12	7	294
Total attendances	115	194	41	26	9	385
Average attendance per session.....	41	62	50	47	45	245

There was no regular Medical Officer of the consultations during 1920, but the Medical Officer of Health and the Tuberculosis Officer attended whenever possible. In February, 1921, a Lady Assistant Medical Officer was appointed, and she attends all the centres.

A most gratifying development of our Infant Consultation work was the association with it as voluntary workers of members of the British Red Cross Society. There is for each consultation a Superintendent of Voluntary Workers, and she attends each week with the requisite number of helpers, generally six.

The main object of an Infant Consultation is the encouragement of breast feeding and every effort (including breast massage) is used to achieve this purpose, but it is often uphill work to persuade a mother who desires to return to the mill to really persevere with natural feeding. It does not seem to be realised that cows' milk is intended for calves and mothers' milk for babies.

Such a very large number of the babies of Blackburn are fed artificially before they are brought to the centres, that dried milk, the cleanliness of which can be guaranteed, is sold at cost to mothers unable to afford the ordinary price; Virol is also sold in suitable cases. Although it is still unusual for babies to be brought to the consultations who are believed by their mothers to be perfectly healthy, it is slowly being realised that the object of an infant consultation is to keep healthy babies healthy and not to cure sick ones. It is gratifying that this idea of associating doctors with keeping people healthy as well as curing the sick is at last, so far as child welfare is concerned, bearing a little fruit. Fortunately many of the disabilities of babyhood can be remedied by attention to the mode and frequency of feeding. Whenever a child, however, is suffering from a definite disease, the mother is requested to secure private medical advice, and in this way because of the infant consultations many ailments receive professional attention and are cured in contra-distinction to the methods formerly adopted by many parents of using domestic

remedies and waiting until the child was at death's door before summoning a doctor.

Short addresses have been given by the Health Visitors on such subjects as "Pregnancy," "Binders," "Vaccination," "Infectious Diseases," "Sugar and its Food Value," "Breast Feeding," "Infants' Clothing," "Table Manners and Health," "Why Baby is Cross," "Clothing for Children during Hot Weather," "Diarrhœa," "Colic," "Over-Feeding," "Dummies," "Constipation," "Care of Infants' Eyes," "Chest Troubles," "Burns and Scalds, and their Treatment," "Teeth," "Grandmothers," "Rickets," "Ventilation," "Artificial Feeding," "How to Bath Baby."

Further developments of this work are the provision of instruction in working-class cookery and in sewing for infants and toddlers.

77. *Propaganda Work.* Every effort was made to disseminate information on child welfare to all mothers and fathers (including those who did not attend the centres) by lectures, paragraphs in the Press, etc., and early in 1921 a Health and Child Welfare Exhibition was held.

78. *Ante-Natal Work.* Little was done for expectant mothers in 1920, though 101 attended the Maternity and Child Welfare Centres and received appropriate advice. An Ante-Natal Clinic has now been established and is held at the Town Hall each Saturday at 10 a.m. Here the bony passages are measured and the necessary advice given in those cases where difficulty at the time of labour is anticipated: also the earliest onset of the serious toxæmias or poisonings which affect some pregnant women can be detected and efforts made to check their further development.

Five maternity bags are available, and they were lent to necessitous mothers on 18 occasions.

79. *Stillbirths.* The total number of still-born children taken to the cemetery during the year was 123.

The number of stillbirths notified during the year under the Notification of Births Acts was 144 :—

Males	75
Females	67
Sex not stated	2

Forty were notified by medical men, 99 by midwives, and 5 by parents. A medical man attended the confinement alone in 40 cases, a medical man and a midwife in 34, and a midwife alone in 70. The age of the foetus was full term in 53 cases, 8 months in 14, and 7 months in 43; in the remaining 43 cases this information was not obtainable. Efforts are being made to investigate the cause of these stillbirths.

80. *Ophthalmia Neonatorum*. Twenty-two cases were notified during the year, compared with 18 in 1919, 15 in 1918, and 7 in 1917, the rates per thousand births being 7.7 in 1920, 9.7 in 1919, 9.6 in 1918, and 4.3 in 1917. The notification rate throughout England and Wales in 1920 was 10.76 per thousand births. This affection is caused in the great majority of cases by Gonorrhœa, and is to a certain extent an index of the prevalence of that disease. The small incidence in Blackburn compared with other towns is principally due to the almost invariable practice adopted by midwives here of instilling a silver disinfectant solution into the eyes of newly-born children.

Fourteen babies were treated under the supervision of private medical practitioners, 4 received attention as out-patients at the Royal Infirmary, and 4 were admitted with their mothers to the Corporation Hospital.

Several mothers had apparently suffered during pregnancy from a condition that should have directed the attention of the midwife to the likelihood of ophthalmia supervening in the child. It is to be regretted that cases appear to be booked by certain midwives in a somewhat casual fashion: it is important that there should be a full enquiry, before a midwife accepts a case, into a patient's health during pregnancy and the results of former labours. One child died in the hospital

of prematurity : in every other case the child recovered with the sight apparently unimpaired.

81. *Provision of Home Nursing.* Since the 1st December, 1920, the District Nurses agreed to nurse cases of measles, whooping-cough or pneumonia following these diseases, ophthalmia-neonatorum, epidemic diarrhœa, acute poliomyelitis, puerperal fever, tuberculosis, and acute primary or acute influenzal pneumonia, referred to them by the Corporation. An annual retaining fee is paid by the Corporation, who also make a payment per visit. The visits to cases of tuberculosis and pneumonia are recorded on pages 61 and 51 : there was no other case nursed during that month.

82. *Treatment of Children under school age at the Clinics.* During the year permission to send children under school age for treatment at the Education Authority's clinics, particularly those for eyes and for the operative treatment of adenoids and enlarged tonsils, was granted.

83. *Care of Illegitimate Children.* No special provision is made by the Corporation for the care or supervision of these cases, but during the year the Manchester Diocesan Association for Preventive and Rescue Work made arrangements to adapt a large house, "Viewfield," for the reception of illegitimate children and their mothers. It was not, however, available for the reception of cases until 1921.

There is no doubt that this scheme sows the seed of a social work of the first importance : it will have its effect, not only on the death-rate of illegitimate children, but on the incidence of prostitution, the ranks of "fallen" women having been so very often in the past recruited from those who had been expelled from home because of their having given birth to an illegitimate child and being abandoned by the father.

84. *Midwives Acts, 1902 and 1918.* The number of midwives on the local roll is 39 : twelve of the midwives are untrained. Midwives attended, during 1920, 2,392 births, or 84.6 % of all those which occurred in the town, compared with 65 % in 1919. The fees now charged by midwives are

from £1 5s. od. to £1 10s. od. per case. The number of midwives is approximately sufficient for the needs of the town, but somewhat better distribution would perhaps be advisable. Three midwives did not attend any case during the year, and four acted as monthly nurses only. One midwife attended 189 confinements, and another 179.

There were 29 records of discontinuance of breast feeding while a midwife was in attendance: the reasons given were :—

“ Imperfect Nipples ”	10
“ On medical advice ”	7
“ No desire ”	4
“ Inability ”	3
“ Weak state of mother ”	2
“ Intending to resume work ”	2
“ Insufficient Milk ”	1

Arising out of attendance at the births for which the midwives were engaged, 477 records of sending for medical help were received, or 19.9 % of the births attended by midwives, compared with 20.4 % in 1919. Five of the calls were for abnormalities which occurred during pregnancy, 122 for unusual presentations or obstructed labour, 166 for ruptured perineum, 24 for illness of the mother during the lying-in period, 24 for inflammation of the infants' eyes or eyelids, and 52 for other weakness or defect in the child. Full particulars are given in Appendix 25 (Page 113), of the emergencies which necessitated the summoning of a doctor.

There was no application during 1920 from a doctor for payment of his fee for attending one of these emergency cases. At the end of the year a circular was issued to the doctors drawing attention to the provisions of the Midwives Act, 1918, which made the Local Authority liable for payment when the doctor could not otherwise obtain his fee, and since then a certain number of applications for payment have been received.

During the year one midwife had to be reprimanded on two occasions : on the first for failure to visit her patient on

the third, sixth and seventh days after confinement, and for entering fictitious pulse rates and temperature records in her chart, and on the second (five months later) for failure to obtain medical help promptly in a case of ophthalmia neonatorum. Three unregistered women, known commonly as "handy women," are known to be available for the conduct of labours: one was formerly on the midwives' roll but her name was removed. Eight women were attended by them in 1920, but in each case it was maintained, and with some degree of justice, that the handywoman's services were requisitioned in an emergency.

85. *Puerperal Fever.* Twelve cases of Puerperal Fever were notified: seven of the notifications were received from the Infirmary, and four related to patients who resided outside the Borough. Three of the eight Blackburn patients died; five of those who resided in the Borough were treated at home and one died. Of the three very serious cases treated in hospital two died: a midwife attended the confinement in four instances, a doctor and midwife in one, and a doctor only in three.

Anti-streptococcic serum was obtained from the Health Department in four cases.

86. *Mortality in connection with Child-birth.* There were 13 deaths from complications and diseases of pregnancy other than puerperal fever, namely:—

Eclampsia	3
Hæmorrhage due to Placenta Prævia...	3
Contracted pelvis and obstructed labour	1
Pneumonia and parturition	1
Bronchitis and parturition	1
Hæmorrhage from early tubal pregnancy	1
Hydatidiform Mole	1
Accidental Hæmorrhage	1
Abortion and Peritonitis	1

Including the three deaths from puerperal fever there were 16 deaths resulting from child-birth, being at the rate of one for every 176 births, compared with one for every 167 births during 1919, or

5.6 per thousand births during 1920,
and 5.9 per thousand births during 1919.

Throughout England and Wales for 1919, the latest figure available, the death-rate was 4.12 per thousand births, showing that in Blackburn this cause of death is far too high.

87. *Maternity Hospital.* A Maternity Hospital is absolutely essential if our Maternity and Child Welfare scheme is to be complete. Beyond the Poor Law accommodation, there is no definite provision for the hospital treatment of puerperal cases, although an occasional case of obstructed labour and all the cases where Cæsarian Section is required are admitted to the Royal Infirmary. Fortunately the difficulty is now about to be relieved as it has been arranged with the District Nursing Association that provision for six patients is to be made in their Home : it is hoped that the first patient will be admitted in August, 1921.

Not only is a hospital needed to which women may be taken in the course of a difficult confinement, but it is just as important to provide accommodation for cases discovered at the Ante-Natal Clinic where induction of labour a few weeks earlier than normal may save the lives of both mother and child. Under present housing conditions, which apparently will not be relieved appreciably for some time, accommodation is required for normal cases for which there is no room at home. A further use to which such an institution could be put would be as a rest home for women with diseases or disabilities of pregnancy and which could not receive, owing to the largeness of their families or for other reasons, adequate treatment at home.

SANITARY ADMINISTRATION.

88. *Staff.* The names of the staff are set out on page 4. There are an Inspector of Nuisances and five District

Inspectors, a special Drainage Inspector, an Inspector of Workshops and Factories and an Inspector who devotes a considerable part of his time to taking samples of food and drugs.

89. *Hospital Accommodation.* The Corporation Hospital for Infectious Diseases is situated in Park Lee Road and occupies a site of $10\frac{1}{2}$ acres. There are five separate pavilions and on the basis of 2,000 cubic feet per patient, the accommodation is 98 beds, 26 of which are reserved for cases of pulmonary tuberculosis. As the portion of the hospital available for cases of fever was fortunately not fully occupied, 11 cases from outside the district were admitted and an appropriate charge made to the authorities in whose districts the patients resided. The diseases generally treated are Scarlet Fever, Diphtheria, and Enteric Fever. During 1920 it was decided to admit, whenever the accommodation allows, cases of Measles or Whooping-cough complicated by pneumonia, and cases of ophthalmia neonatorum and their mothers.

The following Table gives a summary of the numbers of patients dealt with in 1920. The Report of the Resident Medical Officer, Dr. A. J. Ewing, gives fuller particulars and is printed as Appendix 26 (Page 115).

	In Hospital Jan. 1st, 1920.	Admitted	Died.	In Hospital 31st, Dec., 1920.	Case Mortality.
Scarlet Fever.....	37	164	3	16	2%
Diphtheria	4	59	7	6	13.2%
Enteric Fever .....	...	6	...	1	...
Ophthalmia Neonatorum...	...	4	1	...	25%
Pulmonary Tuberculosis ...	16	98	23	18	20.1%
Total.....	57	331	34	41	10.6%

Excluding cases of pulmonary tuberculosis, the case mortality was 4 %.

The Finnington Hospital for Smallpox remained closed throughout the year. Application was made by the Clitheroe Borough and Rural Councils for us to reserve accommodation at Finnington for their Smallpox patients, and this was done. The Chorley Joint Hospital Board also reserve accommodation there.

90. *Bacteriological Examinations.* The following are particulars of the examinations carried out during 1920 at the hospital laboratory :—

	Positive	Negative	Total.
For Diptheria Bacilli :—			
SWABS. Private Practitioners.....	15	98	113
Hospital	53	139	192
For Tubercle Bacilli :—			
SPUTUM. Private Practitioners	58	274	332
Hospital	129	257	386
Tuberculosis Officer	13	91	104
Other Examinations.....	3	11	14
Total.....	271	870	1141

In addition, 97 samples of milk, 24 sera for agglutination reactions, 7 specimens of fæces after typhoid fever and 1 after dysentery were examined by Professor Delépine at the Manchester University. These are apart from the 1,161 specimens in connection with the venereal diseases scheme which were examined by Professor Dean.

HOUSING.

91. *Number of Houses.* The number of buildings used as dwellings in Blackburn at the census of 1911 was 31,131, 801 of which were unoccupied. The Borough Engineer in-

forms me that the number of houses built each year since then is as under :—

<i>Year.</i>	<i>No.</i>
1911	162
1912	131
1913	161
1914	202
1915	139
1916	42
1917	2
1918	2
1919	1
1920	23
	<hr/>
Total	865
	<hr/>

So far is known, 186 houses have been demolished since 1911, and the number of houses in the town at the end of 1920 therefore is approximately 31,360. About 26,800 may be regarded as houses designed for the working classes : this includes all houses where the accommodation does not exceed a parlour, living-room, scullery, and four bedrooms.

92. *House Shortage.* It is impossible in the absence of precise information as to the population of the town to give even an approximate estimate of the housing shortage. In a return sent to the Ministry of Health early in 1920, the figure of 576 was given as our estimate of working-class houses required during the next three years.

93. *Housing Scheme.* It was proposed to erect 136 houses on the Green Lane site, Cherry Tree, but up to the end of the year no house had been completed, but a number were in course of erection. Up to the close of the year building operations at the Intack site (136 houses) and Brownhill (304) had not been commenced.

94. *Overcrowding.* In normal times Blackburn cannot be regarded as an overcrowded town. At the census of 1911

the percentage of the population living more than two to a room, which is the Registrar General's criterion of overcrowding, was 4.4, that being with the exception of Southport (3.5) and Blackpool (4.2) the lowest of the Lancashire County Boroughs, which range up to 17 % living in overcrowded houses in St. Helen's. There is reason to believe that the housing shortage here, though acute, is not quite so bad as in other industrial towns.

95. *Standard of Housing.* It is impossible to generalise about the "standard of housing in the district," as it varies so widely in different parts of the town and even in the same street, the conditions of the fabric depending as it does on the two varying factors :—

- (a) The care which the tenant takes of the property,
and
- (b) The money which the landlord can and will spend
upon it.

In view of the very high cost of repairs and the expectation that this would shortly fall, no systematic street by street inspection of houses was made in 1920, though very early in 1921 a house-to-house inspection was undertaken in certain streets and notices under the Public Health Acts served for the repair of the sanitary defects. Our procedure in 1920 was to concentrate on important matters such as dampness, defective drainage, provision of proper sanitary conveniences and receptacles for ashes, and insist in these receiving attention. Houses to the number of 1,354 were inspected under the Public Health Acts either because the occupants had complained, infectious sickness had occurred, or for some other reason the houses had to be visited : 936 preliminary, or formal notices under the Public Health Acts were served with regard to these houses, and the sanitary defects in 878 had been rectified before the end of the year.

96. *Increase of Rent and Mortgage Interest (Restrictions) Act, 1920.* In 100 cases application was made by a tenant for a certificate to the effect that his house was not in all respects reasonably fit for human habitation. In 11 the houses

were found to be in a satisfactory condition, but in the other 89 certificates were given. In the majority of cases the owner carried out the repairs and claimed the increase of rent allowed by this Act, but in some cases the owner did no repairs and allowed the rent to remain unchanged. In these cases, if the defects were serious, a notice under the Public Health Acts was served.

97. *Housing (Additional Powers) Act, 1919.* It was found in several instances that contrary to the provisions of Section 6 of the above-mentioned Act, dwelling-houses were being converted into business premises. Steps were taken to draw the attention of the owners to the requirements of the Act and in certain cases the owners were instructed to put the houses into use again as dwellings.

98. *Unfit Houses or Areas.* In order to supply the information required for the Housing Survey of the Ministry of Health, the Health Sub-Committee visited most of the old property in the town. They prepared a list of property which was :—

1. Unfit for human habitation.
2. Seriously defective but could be made fit.
3. Uninhabited obstructive buildings.
4. Areas for re-construction.

The first group contained 192 houses and closing orders will be issued when the present acute housing shortage is relieved.

There were 99 seriously defective houses and they are now being dealt with.

The uninhabited obstructive buildings numbered 134, and it is hoped that they will be demolished at an early date.

There were three areas for which re-construction was recommended : they are in the neighbourhood of Union Buildings and Swarbrick Street and contain 77 houses. Unfortunately the present indications are that it will be very many

years before any serious scheme of re-construction can be considered. In September, 1920, it was necessary to close four occupied houses, two in Follywell Street and two in Redlam, because they were in danger of collapse. One was still occupied at the end of the year at the tenant's own risk as he could not obtain accommodation elsewhere. In Appendix 27 (Page 119), will be found a Table giving particulars of the present condition of the 965 houses which have been closed by the Sanitary Authority since 1879. Four hundred have been demolished, 201 converted into workshops, 24 are uninhabited, 113 back-to-back houses have been made into through houses (sometimes two and sometimes three houses being utilised for each through house), 79 have been reconstructed or thoroughly repaired and are now occupied, and 9 are still inhabited although little or nothing has been done since the closing orders were issued. 139 of the cellars which were closed have been added to the upstairs houses or filled in.

Appendix 28 (Page 120) gives particulars of the housing statistics required by the Ministry of Health.

THE FUTURE.

99. The efforts of Public Health Authorities have in the past been directed mainly to the removal of gross forms of insanitation by, for example, the provision of a pure water supply, efficient scavenging, and housing schemes. This work of creating an improved sanitary environment is still proceeding, but a perusal of any report on the health of the inhabitants of a large town will demonstrate that an essential need in a scheme for improving health is the enlightenment of the people. They must be taught to live healthy lives so that they can resist disease: they must know how disease in its early stages can be recognised and how the spread of infectious disease can be avoided. Expenditure on health education will be amply repaid by a saving in the cost of treatment of persons who have become ill through ignorance of how to keep well. No sanitary problem was ever solved only by treating those who fall ill. We must begin at the beginning and endeavour to prevent healthy people from be-

coming ill. The Chief Medical Officer of the Ministry of Health puts it well when he says, "An essential part of any national health policy is the instruction in the principles and practice of hygiene of the great mass of the people. In this as in other spheres of human affairs ignorance is the chief curse. We are only now, as knowledge grows, becoming aware of the immeasurable part played by ignorance in the realm of disease. It is hardly too much to say that in proportion as knowledge spreads in a population, disease and incapacity decline, and this becomes more evident as the gross forms of pandemic disease are overcome. As in the individual so in the community, knowledge is the sheet anchor of preventive medicine—knowledge of the way of health, knowledge of the causes and channels of disease, knowledge of remedy." It has, therefore, been decided to form in Blackburn a Committee for the purpose of educating public opinion on health matters. This Committee will carry out its work by various methods: Press notices containing in plain language essential points regarding the prevention of ill-health; popular lectures illustrated by cinema films or lantern slides will be given, and travelling exhibitions relating, for example, to tuberculosis or child welfare will be invited to visit the town. A strong Committee on these lines was formed in December, 1920, and excellent work has already been done.

APPENDIX 1

METEOROLOGICAL OBSERVATIONS

Mean monthly reading of the Barometer — 29.877".

Highest daily reading of the Barometer — 30.592" on February 5th.

Lowest daily reading of the Barometer — 28.661" on January 11th.

Highest reading of the Maximum Thermometer — 76.0°F. on May 26th.

Lowest reading of the Minimum Thermometer — 16.0°F. on December 13th.

Total Rainfall during the year — 43.291 inches.

Number of days during the year on which rain fell — 259.

The greatest number of days on which rain fell in one month — 31, in July.

The highest reading of the 4ft. Thermometer during the year 54.0°F., August 2nd and 11th.

The greatest amount of bright sunshine in one month — 154 hours and 40 minutes, in May.

The least amount of bright sunshine in one month — 18 hours and 50 minutes, in December.

Number of days during the year without any bright sunshine — 100.

APPENDIX 1.—Meteorological Report for the Year 1920.

1920	Mean Pressure		Mean Relative Humidity.	Mean of Maximum and Minimum Temperature.	Mean Temperature at 9 a.m. Readings	Under-ground Temperature		Mean Black Bulb in Vacuo.	Absolute extremes of Temperature.			Mean daily minimum on the grass.	Mean depression of minimum on grass below minimum in the shade.	Total bright sunshine.	Most sunshine in one day.		Direction of the Wind.						Total rainfall.		
	Station Level.	Sea Level.				Highest.	Date.		Lowest	Date.	Am't.				Date	N.	N.E.	E.	S.E.	S.	S.W.	W.		N.W.	
	inches	inches	%	deg.	deg.	deg.	deg.	deg.	deg.	deg.	deg.	deg.	hrs. min.	hrs. min.	Inches										
January ...	29'159	29'714	91'0	39'15	43'7	38'7	41'1	61'0	54	18th	26	6th	3'0	24—0	4—0	31st	0	0	5	1	9	1	13	2	3'85
February	29'490	30'041	93'2	41'5	45'4	40'1	41'17	73'4	57	19th	28	5th	4'8	58—50	8—30	17th	1	..	6	...	9	1	12	...	3'525
March ...	29'243	29'816	92'0	42'96	46'4	41'8	41'88	87'9	61'8	31st	21	8th	3'7	75—0	8—50	26th	3	...	3	3	11	1	8	2	4'34
April	29'048	29'584	92'6	43'93	47'9	44'5	43'4	87'6	55	1st 24th	33'5	17th	3'1	60—0	10—35	30th	4	1	9	1	8	2	5	4'33	
May	29'405	29'924	96'3	50'43	52'8	45'5	45'9	113'7	76	26th	36	1st	3'9	154—40	13—30	25th	...	...	8	...	8	2	12	1	6'045
June	29'449	29'956	92'9	55'23	56'9	58'8	50'0	116'8	75'5	18th	37	5th	3'2	135—15	12—45	11th	...	...	18	...	2	...	9	1	3'075
July	29'292	29'766	91'7	55'28	57'1	56'0	52'7	109'3	65	3rd	45	27th	2'2	91—35	10—45	25th	4	...	2	...	6	9	7	3	6'00
August ...	29'480	29'991	94'6	54'29	56'5	55'6	54	106'0	67	29th	39	31st	3'1	76—55	9—30	14th	2	...	8	1	2	5	10	3	2'59
September	29'432	29'946	93'2	53'44	55'4	53'3	52'8	100'4	69'5	13th	40	23rd	4'0	110—20	9—0	23rd	...	1	7	1	8	...	10	3	2'81
October ...	29'405	29'927	88'7	50'27	53'5	50'5	51'5	85'9	69	6th	36	18th 19th	3'8	120—50	8—30	26th	...	...	22	...	9	...	...	...	2'085
November	29'419	29'958	86'6	43'76	48'8	44'7	47'7	64'9	53'8	9th 10th	28	22nd	2'2	43—15	5—40	6th	...	...	12	...	7	...	11	...	1'99
December	29'345	29'898	88'4	38'55	45'3	39'8	43'9	45'2	53	3rd	16	13th	2'7	18—50	3—50	5th	3	...	15	1	9	...	2	1	2'651

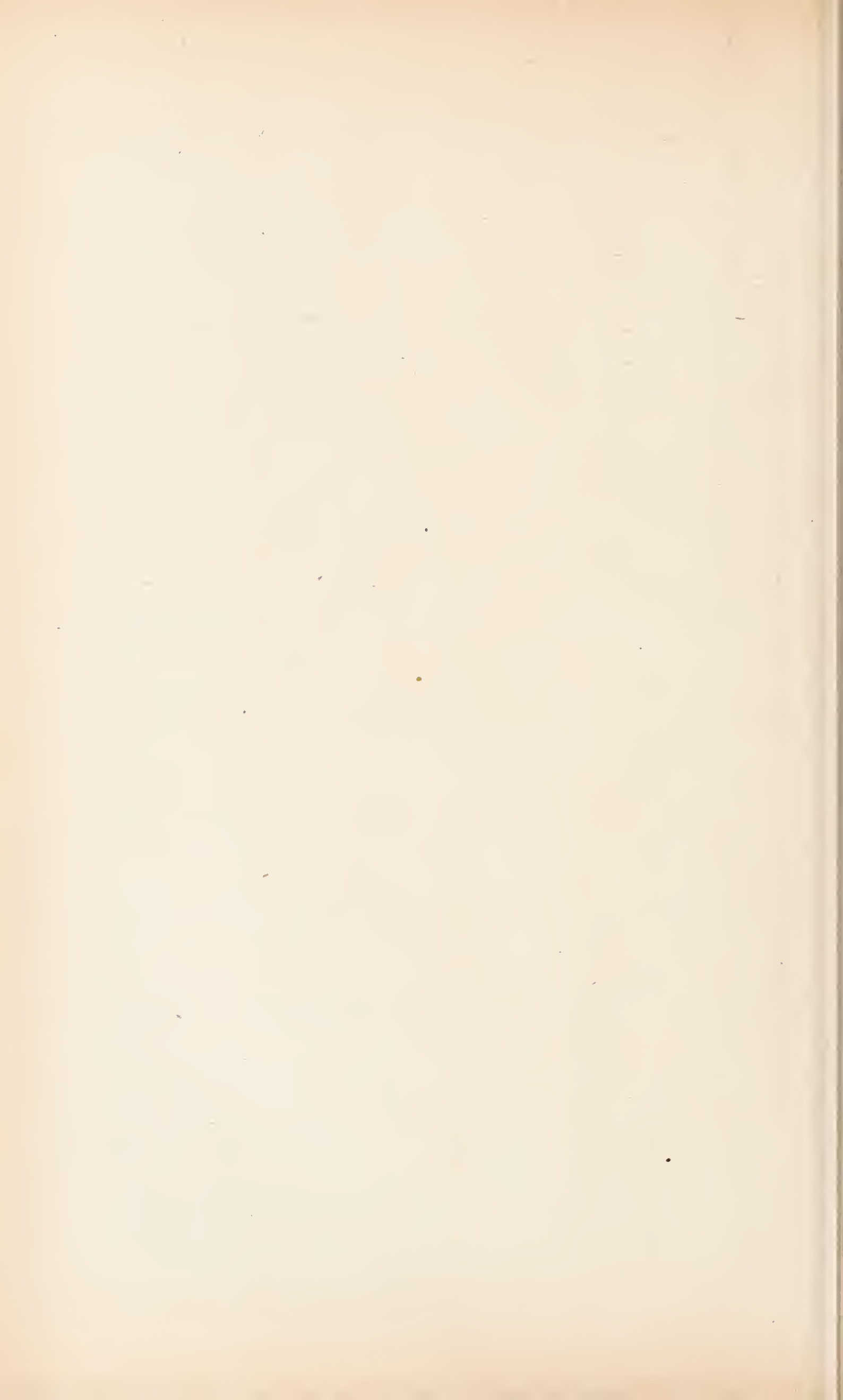
APPENDIX. 2.

Vital Statistics of Whole District during 1920 and Previous Years.

YEAR.	Population estimated to Middle of each Year.	BIRTHS.			TOTAL DEATHS REGISTERED IN THE DISTRICT.		TRANSFERABLE DEATHS.		NETT DEATHS BELONGING TO THE DISTRICT.			
		Un- corrected Number.	Nett.		Number.	Rate.	of Non- residents registered in the District.	of Resi- dents not registered in the District.	Under 1 Year of Age.		At all Ages.	
			Number.	Rate.					Number.	Rate per 1,000 Nett Births.	Number.	Rate.
1	2	3	4	5	6	7	8	9	10	11	12	13
1912	133539	2741	2737	20.4	1988	14.8	118	58	327	119.4	1928	14.4
1913	133931	2923	2915	21.7	2205	16.4	147	61	431	147.8	2119	15.8
1914	134323	2814	2805	20.8	2080	15.4	141	67	326	116.2	2006	14.9
1915	127443	2456	2452	19.2	2184	17.2	164	42	357	145.6	2062	16.1
1916	121066	2067	2065	15.6	1875	15.4	154	58	250	121.0	1779	14.6
1917	113315	1627	1626	12.8	1829	16.1	148	86	180	110.7	1767	15.5
1918	111447	1551	1552	12.4	2265	20.3	178	88	194	125.0	2175	19.5
1919	125992	1835	1838	14.0	2106	16.7	161	63	174	94.6	2008	15.9
1920	140000	2835	2827	20.1	1891	13.5	157	52	311	110.0	1786	12.7

Deaths registered during the Calendar Year 1920 classified by age and cause.

Nett Deaths at the subjoined ages of "Residents," whether occurring within or without the District.										
CAUSES OF DEATH.	All Ages.	Under 1 year	1 and under 2 years	2 and under 5 years	5 and under 15 years	15 and under 25 years	25 and under 45 years	45 and 65 years	65 and upwards.	Total Deaths whether of Residents or of persons in the District
1	2	3	4	5	6	7	8	9	10	11
All causes { Certified ... Uncertified ...	1779	305	32	31	52	70	250	435	604	477
	7	6	...	...	...	...	1	...	...	...
Enteric Fever ...	...	...	...	...	...	...	...	...	...	...
Small Pox ...	...	...	...	...	...	...	...	...	...	...
Menses ...	18	10	3	3	2	...	...	...	...	1
Scarlet Fever ...	3	...	...	...	3	...	...	...	...	3
Whooping Cough ...	1	...	...	1	...	...	...	...	...	...
Diphtheria and Croup ...	10	2	1	3	3	1	...	...	...	7
Influenza ...	59	4	...	...	...	2	16	15	22	3
Erysipelas ...	...	...	...	...	...	...	...	...	...	...
Phthisis (Pulmonary Tuberculosis)	82	...	...	...	5	17	41	17	2	30
Tuberculous Meningitis ...	14	3	1	3	5	1	1	...	...	2
Other Tuberculous Diseases ..	15	1	...	2	2	4	4	1	1	8
Cancer, malignant disease ...	172	...	...	...	...	...	22	86	64	54
Rheumatic Fever ...	...	...	...	...	...	...	...	...	...	...
Meningitis ...	17	12	2	2	...	1	...	...	...	1
Organic Heart Disease ...	215	...	...	1	4	5	34	55	113	72
Bronchitis ...	231	29	6	1	...	2	9	54	130	15
Pneumonia (all forms) ...	178	29	13	5	4	11	35	41	40	31
Other diseases of Respiratory organs ...	16	...	...	...	...	1	6	3	6	6
Diarrhoea and Enteritis.	45	33	2	...	1	...	3	4	2	6
Appendicitis and Typhlitis	12	...	...	...	2	3	2	5	...	22
Cirrhosis of Liver ...	3	...	...	...	...	...	2	1	...	2
Alcoholism ...	3	...	...	...	...	...	2	1	...	2
Nephritis and Bright's Disease ...	52	...	...	...	3	5	4	25	15	9
Puerperal Fever ...	3	...	...	...	...	...	...	3	...	5
Other accidents and diseases of Pregnancy and Parturition ...	13	...	...	...	...	1	12	...	...	7
Congenital Debility and Malformation, including Premature Birth ...	130	130	...	...	...	...	...	...	...	14
Violent Deaths, excluding Suicide	48	2	1	2	7	6	8	15	7	26
Suicides ...	12	...	...	...	...	1	6	3	2	4
Other Defined Diseases ...	407	55	3	8	9	9	37	92	194	143
Diseases ill-defined or unknown...	27	1	...	...	2	...	4	11	6	4
Totals ...	1786	311	32	31	52	70	251	435	604	477



APPENDIX 4.

Deaths under One Year, arranged according to Days, Weeks and Months.

CAUSES OF DEATH.	1st day.	2nd day.	3rd day.	4th day.	5th day.	6th day.	7th day.	1st week.	2nd Week.	3rd week.	4th week.	Under 1 month.	1 month to 2.	2 months to 3.	3 months to 4.	4 months to 5.	5 months to 6.	6 months to 7.	7 months to 8.	8 months to 9.	9 months to 10.	10 months to 11.	11 months to 12.	Total.
All causes { Certified	61	14	11	7	1	2	2	98	27	14	10	149	36	23	16	8	15	10	13	8	13	8	6	305
Uncertified	6	...	...	...	...	...	...	6	...	...	...	6	...	...	...	...	...	...	...	...	...	...	...	6
Smallpox .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chicken-pox .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Measles .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Scarlet Fever .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Whooping-cough .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Diphtheria and Croup .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Erysipelas .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tuberculous Meningitis .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Abdominal Tuberculosis .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other Tuberculous Diseases .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Meningitis (not Tuberculous) .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Convulsions	1	...	1	1	...	...	...	3	3	...	1	7	2	1	1	...	...	...	...	...	...	...	...	...
Laryngitis .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bronchitis .....	...	...	...	...	...	...	...	...	4	3	2	9	3	2	3	...	...	...	...	...	...	...	...	...
Pneumonia (all forms) .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Diarrhoea	1	...	...	...	...	...	...	1	...	1	...	2	3	7	4	1	1	1	2	2	4	1	1	29
Enteritis .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Gastritis .....	...	...	...	...	...	...	...	...	...	2	...	2	2	1	...	...	...	...	...	...	...	...	...	...
Syphilis .....	...	...	...	...	...	...	...	...	1	1	...	2	3	...	...	...	...	...	...	...	...	...	...	...
Rickets .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Suffocation, overlying	1	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Injury at birth	1	...	...	2	...	...	...	3	1	...	...	4	...	...	...	...	...	...	...	...	...	...	...	...
Atelectasis	4	...	...	...	...	...	...	4	1	...	...	5	...	...	...	...	...	...	...	...	...	...	...	...
Congenital Malformations	3	1	3	1	...	1	...	9	...	1	1	11	...	...	1	...	...	...	...	...	...	...	...	...
Premature birth	36	7	5	2	...	1	2	53	8	2	1	64	2	1	...	...	...	...	...	...	...	...	...	...
Atrophy, Debility and Marasmus	17	5	2	1	...	...	...	25	5	1	4	35	7	3	1	1	2	...	...	...	2	...	...	...
Other causes	3	1	...	...	1	...	...	5	4	3	1	13	4	...	1	1	3	3	3	...	...	...	...	...
TOTAL	67	14	11	7	1	2	2	104	27	14	10	155	36	23	16	8	15	10	13	8	13	8	6	311

Nett Births registered during the calendar year {
 legitimate..... 2698
 illegitimate..... 129

Nett Deaths registered during the calendar year of {
 legitimate infants..... 281
 illegitimate infants..... 30

APPENDIX 5.

Classification of Deaths according to Disease.

CAUSE OF DEATH.	1913.	1914.	1915	1916.	1917.	1918	1919.	1920.	19 20 Death Rates.	
	Total De'ths	Total De'ths	Total De'ths	Total De'ths	Total De'ths	Total De'ths	Total De'ths	Total De'ths	Black- burn	96 large Towns
Enteric Fever	8	7	6	2	1	4	1	...	0'00	0'01
Smallpox .....	...	...	...	...	...	...	...	...	0'00	0 00
Measles	10	20	44	14	21	39	...	18	0'12	0'22
Scarlet Fever	1	10	6	4	2	2	2	3	0'02	0'04
Whooping Cough	7	9	39	7	11	26	11	1	0'007	0'11
Diphtheria and Croup.....	7	7	8	9	8	11	3	10	0'07	0 15
Influenza	35	24	32	25	14	338	187	59	0'42	0'28
Erysipelas	1	3	...	2	2	1	1	...	0'00	*
Phthisis (Pulmonary Tuberculosis)	88	124	109	115	119	126	116	82	0'58	*
Tuberculous Meningitis ..	12	12	14	7	13	17	10	14	0'10	*
Other Tuberculous Disease's	37	20	28	22	23	20	17	15	0'10	*
Cancer, Malignant Disease	139	134	157	136	152	131	165	172	1'22	*
Rheumatic Fever.....	7	5	16	10	2	2	2	...	0'00	*
Meningitis	29	24	18	23	14	21	5	17	0'12	*
Organic Heart Disease...	234	256	232	257	274	214	269	215	1'53	*
Bronchitis	193	246	263	220	190	189	269	231	1'65	*
Pneumonia (all forms) ...	219	192	201	162	155	266	210	178	1'27	*
Other Diseases of res- piratory organs	20	18	15	30	26	27	16	16	0'11	*
Diarrhoea and Enteritis ...	140	60	59	29	36	27	26	45	0'32	*
Appendicitis and Typhlitis	12	12	8	7	16	7	9	12	0'08	*
Cirrhosis of Liver	6	10	12	7	4	6	3	3	0'02	*
Alcoholism	6	3	2	4	...	...	...	3	0'02	*
Nephritis and Bright's Disease	84	82	72	44	46	65	51	52	0'37	*
Puerperal Fever	3	6	3	4	1	2	5	3	0'02	*
Other accidents and diseases of Pregnancy and Parturition	13	12	5	4	9	9	6	13	0'09	*
Congenital Debility and Malformation, including Premature Birth	141	137	112	110	70	73	84	130	0'92	*
Violent Deaths, excluding Suicide	53	45	33	47	60	52	40	48	0'34	0'48
Suicide.....	20	27	13	25	12	10	8	12	0'08	*
Other Defined Diseases...	533	451	502	419	451	442	428	407	2'90	*
Diseases ill-defined or un- known	61	50	53	34	35	48	64	27	0'19	*
Total	2119	2006	2062	1779	1767	2175	2008	1786	12'75	12 4

* Information not yet available.

APPENDIX 6.

Vital Statistics during 1920.

WARDS.	Popula- tion.	Births	Deaths	Birth Rate.	Death Rate.	Deaths under one year per 1000 Births.	Death- rate from six Zymotic Diseases, excluding Diarrhoea	Death- rate from Diar- rhoea	Death- rate from Bronchitis and Pneu- monia.	Death-rate from Pulmonary Tuberculosis.	Death-rate from Non-Pulmonary Tuberculosis.
ST. STEPHEN'S...	11340	265	163	23.3	14.3	136.0	0.4	0.2	3.2	0.8	0.0
TRINITY	10178	239	136	23.4	13.3	117.1	0.3	0.8	3.3	1.0	0.0
ST. MICHAEL'S..	9744	198	116	20.3	11.9	106.6	0.3	0.1	2.3	0.3	0.1
ST. JOHN'S	8246	152	101	18.4	12.2	111.8	0.1	0.2	1.9	0.9	0.3
ST. SILAS'	9996	130	105	13.0	10.5	53.8	0.2	0.0	1.5	0.2	0.1
ST. PAUL'S	10598	242	137	22.8	12.9	124.0	0.09	0.4	3.7	0.9	0.0
ST. PETER'S.....	7378	142	119	19.2	16.1	197.1	0.1	0.8	4.8	0.5	0.0
ST. MARY'S	6790	144	126	21.2	17.1	138.8	0.4	0.4	4.0	0.7	0.3
ST. MATTHEW'S	10514	210	113	20.0	10.7	100.0	0.09	0.2	3.0	0.2	0.3
ST. THOMAS' ...	13510	232	156	17.1	11.5	90.5	0.2	0.2	2.5	0.4	0.3
PARK	10276	224	143	21.8	13.9	125.0	0.4	0.3	2.5	0.3	0.3
ST. LUKE'S	8862	201	112	22.7	12.6	99.5	0.1	0.3	4.0	0.8	0.2
ST. MARK'S	11004	203	117	18.4	10.6	73.9	0.1	0.1	1.9	0.5	0.3
ST. ANDREW'S...	11564	245	142	21.2	12.2	81.6	0.08	0.3	3.0	0.4	0.2
BOROUGH	140000	2827	1786	20.2	12.7	110.0	0.2	0.3	2.9	0.5	0.2

APPENDIX 7.

Infantile Mortality in Wards from 1911 to 1920.

WARD.	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	Average for 10 years.
St. Stephen's	157	113	120	121	144	83	86	145	116	136	132
Trinity ...	162	140	229	144	193	119	102	121	118	117	164
St. Michael's	96	81	78	131	130	98	93	113	53	106	108
St. John's	189	121	128	84	125	141	103	133	129	111	138
St. Silas'...	120	69	58	40	72	98	73	100	51	53	77
St. Paul's	194	122	142	100	114	110	135	146	90	124	141
St. Peter's	315	116	222	129	184	96	180	147	68	197	183
St. Mary's	280	115	222	142	194	157	127	213	131	138	195
St. Matthew's	180	115	142	140	160	72	111	118	75	100	135
St. Thomas's	172	105	132	80	139	88	112	75	88	90	121
Park	258	147	158	138	128	212	142	157	101	125	170
St. Luke's	212	168	144	140	183	147	101	122	117	99	161
St. Mark's	156	90	157	80	93	175	111	97	95	73	123
St. Andrew's	176	143	122	120	175	124	84	91	75	81	125
Borough...	186	119	147	116	145	121	110	125	94	110	141

APPENDIX 8.

Death Rates under One year of age.

CAUSE OF DEATH.	Rates per 1,000 Births.									
	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920
Small-pox	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0
Chicken-pox	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0
Measles	1·7	4·7	1·7	1·7	5·3	1·9	2·4	4·5	0·0	3·5
Scarlet Fever.....	0·3	0·3	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0
Whooping-cough	9·8	5·1	1·3	2·1	8·5	1·4	3·0	3·8	0·5	0·0
Diphtheria and Croup	0·3	0·0	0·0	0·3	0·0	0·0	0·6	0·0	0·0	0·7
Erysipelas	0·0	0·0	0·0	0·7	0·0	0·0	0·0	0·0	0·0	0·0
Tuberculous Meningitis	0·7	0·7	1·0	0·0	0·4	0·4	1·8	3·2	1·0	1·0
Abdominal Tuberculosis	1·0	2·1	4·1	1·4	2·0	1·4	1·8	2·5	0·5	0·4
Other Tuberculous Diseases ...	1·0	0·3	0·3	0·3	0·8	0·0	0·0	0·6	0·0	0·0
Meningitis (<i>not Tuberculous</i>)..	3·1	1·4	2·4	0·7	0·4	2·4	2·4	1·9	0·0	4·2
Convulsions	9·1	13·5	13·0	9·2	9·8	8·2	12·3	5·1	4·9	4·4
Laryngitis ..	1·0	0·0	1·0	0·3	0·8	0·4	0·0	0·0	0·0	0·0
Bronchitis	15·0	9·8	11·6	13·5	23·2	13·5	11·0	14·8	11·4	10·2
Pneumonia (all forms)	14·3	12·4	11·6	10·3	15·0	14·0	11·0	10·9	10·8	10·2
Diarrhoea	58·1	11·3	29·8	12·1	11·4	5·3	8·0	10·9	5·4	10·2
Enteritis	0·0	0·0	5·1	0·7	5·7	4·8	1·2	3·2	0·0	1·4
Gastritis	0·0	0·0	0·0	0·7	2·0	1·9	0·0	0·0	0·5	1·7
Syphilis	1·4	0·7	1·7	0·3	0·8	0·9	0·6	3·2	0·5	1·7
Rickets	0·7	0·0	0·3	0·7	1·2	0·0	0·6	0·0	1·0	0·0
Suffocation, overlying	0·7	1·0	1·0	1·7	1·2	0·0	0·6	0·0	0·5	0·7
Injury at Birth	0·0	0·0	0·3	1·7	0·8	0·0	0·6	0·0	0·5	1·4
Atelectasis	0·3	1·0	1·7	1·7	2·0	3·3	1·8	2·5	1·6	1·7
Congenital Malformations	4·9	4·3	1·0	5·0	6·1	5·8	4·3	6·4	2·7	4·2
Premature Birth	25·5	24·0	20·5	20·7	22·8	30·0	23·9	30·9	26·6	23·7
Atrophy, Debility and Marasmus	25·9	19·3	25·4	22·1	15·0	16·4	12·9	9·7	15·3	18·0
Other causes	11·5	6·5	12·3	7·4	10·6	8·2	9·2	10·3	9·2	9·9

APPENDIX 9.—Life Table for Blackburn based on Mortality of 1911-1912.

Survivors at several ages of 100,000 born, showing also the position of Blackburn amongst the 37 towns with populations exceeding 100,000, the town with the largest number of survivors being marked (1) and that with least (37).

MALES.

	0	1	2	5	10	15	20	25	35	45	55	65	75	85	95
All County Boroughs in England & Wales	100,000	86,020	82,170	79,271	77,706	76,885	75,615	74,085	70,105	63,610	53,034	36,709	16,737	3,027	126
BLACKBURN.....	100,000	83,350	79,630	77,318	75,817	75,124	73,574	72,312	68,845	62,626	52,719	36,181	15,248	2,611	56
Order		34	33	29	29	28	28	28	27	26	21	21	25	17	27

FEMALES.

	0	1	2	5	10	15	20	25	35	45	55	65	75	85	95
All County Boroughs in England & Wales	100,000	88,610	84,880	81,890	80,278	79,379	78,230	76,848	73,567	68,191	59,623	45,505	24,573	5,877	366
BLACKBURN	100,000	85,690	82,418	79,761	78,209	77,571	76,270	74,920	71,194	66,196	58,199	42,305	20,068	4,024	136
Order		35	33	31	31	29	29	28	29	26	25	26	28	26	33

APPENDIX 9.—Continued.

Expectation of Life in years at several ages: also the position of Blackburn amongst the 37 towns.

MALES.

	0	1	2	5	10	15	20	25	35	45	55	65	75	85
All County Boroughs in England and Wales	47.53	54.21	55.73	54.72	50.78	46.30	42.03	37.85	29.69	22.17	15.51	10.05	5.97	3.48
BLACKBURN	46.43	54.66	56.19	54.83	50.87	46.32	42.24	37.93	29.57	21.97	15.08	9.55	5.77	3.02
Order	27	19	14	17	17	16	14	16	17	19	20	21	21	29

FEMALES.

	0	1	2	5	10	15	20	25	35	45	55	65	75	85
All County Boroughs in England and Wales	51.71	57.32	58.82	57.92	54.04	49.63	45.32	41.08	32.68	24.83	17.62	11.42	6.74	3.92
BLACKBURN	49.55	56.77	58.01	56.90	52.99	48.40	44.18	39.93	31.74	23.74	16.25	10.35	6.15	3.31
Order... ..	27	24	24	24	24	27	26	25	24	27	30	31	27	31

APPENDIX IO.

Reports on Analysis of the Town's Water.

Parts per 100,000

Date	Place	Chlo- rides	Saline Ammo- nia	Al'b'noid Ammo- nia	Ni- trites	Ni- trates
29/1/20	Revidge High Level Tank	1.05	0.0012	0.0028	Nil	0.08
16/6/20	Fishmoor Reservoir	0.85	0.0027	0.0076	Nil	0.096
8/7/20	Parsonage „	0.96	0.001	0.013	Nil	0.06
3/8/20	Revidge „	0.8	0.0015	0.0072	Nil	0.06
15/12/20	Guide „	1.	0.0074	0.0084	Nil	0.05

The total solids in the water amount to some 7 parts per 100,000 ; the permanent hardness is about 1.5 and the temporary hardness is 0.25.

APPENDIX 11.

SUMMARY OF WORK DONE BY THE INSPECTOR
OF NUISANCES AND HIS ASSISTANTS.

NUISANCES.

No. of Complaints by Inhabitants	349
„ „ referred by other departments ..	374
„ Special Inspections for suspected Nuisances..	592
Number of Nuisances discovered as result of :—	
(1) Complaints by inhabitants	782
(2) Visiting cases of infectious diseases	106
(3) Special Inspections	1,072
(4) Complaints from other departments	400
(5) Routine inspection visits	1,765
(6) Notification from H.M. Inspector of Fac- tories	83

VISITS *re* SANITATION AND FOOD SUPPLY.

Common Lodging Houses	781
Houses Let in Lodgings	2,459
Dirty Houses	87
Common Yards, Back Roads and Passages	17,652
Infected Houses	813
Work in progress	8,849
Housing and Town Planning Acts	178
Increase of Rent, etc. (Restriction) Act	100
Horse-Manure Midden-Steads	3,873
Smoke Observations	6
Chip Potato Shops	1,616
Fishmongers and Greengrocers	1,621
Milkshops	360
Ashes Receptacles	1,664
Canal Boats	82
Vans	14
Factories	283
Workshops	1,694
Workplaces	283
Offensive Trades	142
Food Preparing and Storing Places	142
Outworkers' Premises	12
Theatres and Cinemas	115
Pail Closet Conversions	85
Suspected Cases of Infectious Diseases	22
Enquiries <i>re</i> Empty Houses	158
Testing Drains :—	
By Smoke	608
,, Water	439
,, Coloured Water	190
,, Breaking Down	136
Miscellaneous Visits	352

APPENDIX 11. (contd.)

Work under Public Health, etc., Acts.

	Notices Served.			Letter from M.O.H.	Prosecution	Nuisances abated or work done
	Verbal Notices	Preliminary Notice	Statutory Notice			
a) Notices served on Occupiers of dwelling houses :—						
Overcrowding in Rooms.....	...	...	...	...	...	...
Cleansing dirty Floors.....	56	19	5	...	...	73
" " Woodwork	21	2	...	...	...	2
" " Yards.....	215	39	5	...	...	284
" " Bedding	9	4	2	...	...	12
" " W.C. Basins.....	39	8	14	...	...	42
" " W.C. Seats	29	9	...	...	...	42
" " Windows .....	...	...	...	...	...	...
" " Gully Traps	116	29	...	...	...	124
" " Cellar areas.....	3	...	...	...	...	3
Removing Fowls & other Animals..	55	49	...	...	...	85
Removing Manure	37	24	...	...	...	68
Removing Rubbish from Premises.....	90	47	3	1	...	143
(b) Factories and Workshops :—						
Want of Cleanliness.....	...	52	...	...	...	43
Want of Ventilation.....	...	8	...	...	...	5
Overcrowding .....	...	1	...	...	...	1
Want of Drainage of Floors.....	...	...	...	...	...	...
Other Nuisances	4	14	...	...	...	16
Sanitary Accommodation { insufficient	...	...	...	...	...	...
unsuitable or	...	1	...	...	...	1
defective	...	...	...	...	...	...
not separate	...	...	...	...	...	...
for sexes	...	...	...	...	...	...
Offences under the Factories and Workshops Acts .....	...	...	...	...	...	...
Illegal occupation of underground Workshops, Bakehouses (S.101) ...	...	...	...	...	...	...
Breach of Special Sanitary requirements for Bakehouses (S.S.97-100)	1	10	...	...	...	9
Other Offences.....	...	...	...	...	...	...
Total Number of Defects..	673	316	29	1	...	950
Total Number of Premises concerned...	647	145	29	1	...	518
a) Notices Served on Owners of Dwelling Houses :—						
Defective Drains	37	101	7	1	...	154
Choked "	35	261	39	10	...	320
Defective Water Closets	6	67	27	12	...	79
" Pail "	4	56	23	9	...	59
" Slop Water Closets .....	...	39	6	...	...	42
" Gullies.....	6	214	1	...	...	225
" Sink Waste Pipes	2	126	24	5	...	145
" W.C. Cisterns and Flushing Fittings	15	425	135	26	...	434
" Urinals.....	...	1	...	...	...	1
" Gutters and Down Spouts...	9	342	110	35	...	347
" Soil Pipes .....	...	38	1	...	...	38
" Dishstones .....	...	168	3	...	...	172

APPENDIX 11. (cont.)

	Notices Served.			Letter from M.O.H.	Prosecution	Nuisances abated or work done
	Verbal Notices	Preliminary Notice	Statutory Notice			
Improper drainage of houses .....	...	5	...	...	...	1
Sink pipes connected with drains .....	...	1	...	...	...	1
Yards unflagged .....	...	52	...	...	...	53
Cellars unflagged.....	...	...	...	...	...	...
Yards badly paved or flagged.....	...	108	9	2	...	110
Damp and defective House Walls, Roofs, etc.	4	416	209	59	...	346
Insufficient ventilation of Rooms .....	...	18	...	...	...	21
Insufficient Water supply.....	...	...	...	...	...	...
Defective manure middensteads	2	13	...	...	...	6
Dwelling-houses to be whitewashed ...	...	138	2	6	...	91
Defective Chimneys to be raised	2	47	8	1	...	39
Ashtubs, Ashpits etc. to be repaired...	3	352	26	6	...	470
Metal Ashbins to be provided.....	...	66	428	36	2	422
Window Sash Frames, Cords, Internal Walls, Ceilings, Floors, Stairs, Fireplaces, Doors, Cupboards to be repaired .....	...	311	124	45	...	221
Conversion of Pail Closets to W.C's...	...	11	75	...	...	11
Privies to be converted to W.C's .....	...	...	...	...	...	...
Conversion of Privies to Pails.....	...	...	...	...	...	...
Slop-water Closets to be converted to W.C's .....	...	...	...	...	...	...
Voluntary Conversions .....	...	...	...	...	...	...
(b) Factories and Workshops :—						
Want of Cleanliness .....	...	10	...	...	...	12
Want of Ventilation .....	...	5	...	...	...	5
Overcrowding .....	...	...	...	...	...	...
Want of Drainage of Floors .....	...	...	...	...	...	...
Other Nuisances	3	45	...	...	...	44
Sanitary Accommodation { insufficient unsuitable or defective not separate for sexes	...	7	3	2	...	2
	1	41	...	...	...	18

Offences under the Factory and Workshop Acts :—						
Illegal occupation of undergrown bake-houses (S. 101) .....	...	...	...	...	...	...
Breach of special sanitary requirements for Bakehouses (S.S. 97-100) ..	...	5	...	...	...	6
Other Offences.....	...	14	...	...	...	7
Offensive Trades.....	...	2	...	...	...	2
Common Lodging Houses	33	3	...	...	...	36
Houses let in Lodgings	96	18	6	...	...	127
Dairies, Cowsheds and Milk-shops, Contraventions.....	...	...	...	...	...	...
Canal Boats :—						
Dirty Conditions.....	2	...	...	...	...	2

APPENDIX 11 (contd.)

	Notice Served.			Letter from M.O.H.	Prose- cution	Nuis- abated or work done.
	Verbal Notice	Prelim- inary Notice.	Statutory Notice			
No Certificates .....	..	..	3	..	..	3
Leaky Cabins .....	..	..	3	..	..	3
Unregistered.....	1	..	..	..	..	1
Without Water Vessel	1	..	..	..	..	1
Total number of defects	262	3516	1272	255	2	4076
Total number of premises concerned...	240	2031	896	139	2	2329

Referred to other Departments.

Street Gullies, Ashpits, etc., reported to Cleansing Department.....	355
Waste Water to Water Department	87
Dangerous Walls, etc., to Borough Engineer	77
Escape of Coal Gas to Gas Department	2

Appendix 12.

ANNUAL REPORT OF THE MEDICAL OFFICER OF HEALTH FOR
the year 1920, for the
COUNTY BOROUGH OF BLACKBURN
on the administration of the the Factory and Workshop Act, in connection with
Factories, Workshops, Workplaces, and Homework.

1.—Inspection of Factories, Workshops, and Workplaces.

Including Inspections made by Sanitary Inspectors or Inspectors of Nuisances.

Premises.	Number of		
	Inspections.	Written Notices.	Prosecutions
Factories (including Factory Laundries)	283	13	...
Workshops (including Workshop Laundries)	1694	91	...
Workplaces (other than Outworker' Premises included in Part 3 of this Report)	283	2	...
Total	2260	106	...

2.—Defects found in Factories, Workshops, and Workplaces.

Particulars.	Found.	Remedied.	Referred to H.M. Inspector.	Number of Prosec't'ns
Nuisances under the Public Health Acts :—*				
Want of cleanliness	62	55	...	...
Want of ventilation	13	10	...	...
Overcrowding	1	1	...	...
Want of drainage of floors ... ..	...	...	...	...
Other nuisances	66	60	...	...
Sanitary accommodation { insufficient	7	2	...	...
{ unsuitable or defective ..	43	19	...	...
{ not separate for sexes ...	...	...	...	...
Offences under the Factory and Workshop Acts :—				
Illegal occupation of underground bakehouse... (s. 101 )	...	...	...	...
Breach of special sanitary requirements for bakehouses (ss. 97 to 100)	16	15	...	...
Other offences (Excluding offences relating to outwork which are included in Part 3 of this Report).	14	7	...	...
Total	222	169	...	...

* Including those specified in section 2, 3, 7, and 8 of the Factory and Workshop Act, 1901, as remediable under the Public Health Acts.

3.—Registered Workshops.

Workshops on the Register (s.131) at the end of the year.		Number.
Important classes of workshops, such as workshop bakehouses may be enumerated here.	Workshops	538
	Workshop bakehouses	101
	Domestic Retail Bakehouses	84
	Total number of Workshops on Register ...	723

4.—Other matters.

Class.	Number.
Matters notified to H.M. Inspector of Factories:—	
Failure to affix Abstract of the Factory & Workshop Acts (s.133, 1901)	1
Notified by H.M. Inspector	58
Action taken in matters referred by H.M. Inspector as remediable under the Public Health Acts, but not under the Factory & Workshop Acts (s.5, 1901)	
Reports of action taken sent to H.M. Inspector... ..	58
Other... ..	...
Underground Bakehouses (s. 101) in use at the end of the year	2

APPENDIX 13.

PUBLIC ABATTOIR, 1920.

Animals slaughtered at the Abattoir :—

Beasts.	Sheep.	Calves.	Pigs.
8,822	39,345	2,420	4,112

Number of carcasses and amount of dead meat brought
Abattoir :—

Carcasses:

Beef.	Mutton.	Pigs.
2,415 $\frac{1}{4}$	35,979	—

Beef:

Cases of						Bags of	
Hind Qrs.	Fore Qrs.	Tails.	Livers.	Tongues.	Kidneys.	Offal.	
650	45	22	46	2	5	14	

TUBERCULOSIS IN THE ANIMALS SLAUGHTERED.

Extent of the Tubercular process in partially rejected carcases.																		
Kind of Animal.	Number Slaughtered.	Of which were Tuberculous	Totally Rejected.	Heads.	THORAX.			ABDOMEN.							Udders	Testicles	Bones	Parts of Carcases in lbs.
					Lungs	Heart and Pericardium	Serous Membranes	Livers	Stomachs	Spleens	Kidneys	Intestines	Uteri	Serous Membranes				
Cows	2982	120	36	29	84	...	48	14	13	...	...	...	1	...	...	...	9	3549
Heifers	1530	16	5	4	11	...	8	3	2	...	...	...	...	...	...	...	...	413
Bulls	713	1	...	1	1	...	1	...	...	...	...	...	...	...	...	...	...	40
Bullocks	3596	5	...	...	5	...	4	1	1	...	...	...	...	...	...	...	...	...
Calves	2420	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Sheep	39345	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Pigs	4112	66	12	53	54	...	...	5	...	...	...	...	...	...	...	...	...	...
Totals	54698	208	53	87	155	...	61	23	16	...	...	...	1	...	...	...	9	4002

Organs and parts of Carcasses examined, rejected and destroyed, for Disease other than Tuberculosis.

Disease or Condition.	Heads	Lungs	Hearts	Diaphragms	Livers	Stomachs	Spleens	Kidneys	Udders	Intestines	Testicles	Bones	Lbs. of Meat
Fluke	497	..	..	..	..	..	..	..	..
Cirrhosis	142	..	..	..	..	..	..	..	..
Necrosis	1	..	..	..	..	..	..	..	..
Angioma	18	..	..	..	..	..	..	..	..
Cysts	12	..	..	7	..	..	1	..	..	..	..	..
Unwholesome	5	..	..	2	2	..	..	..	..	..	..	1722½
Abscesses	3	..	..	..	..	..	..	..	..
Unsound	42	..	..	..	..	..	..	..	..	..	..	4239
Mastitis	5	..	..	..	..
Parasitic	8	..	..	..
Bruised	—
										238			238
Total.....	..	59	..	..	670	2	..	1	5	8	..	..	6199½

CARCASES TOTALLY REJECTED FOR DISEASES OTHER THAN TUBERCULOSIS.

BEEF.		MUTTON.		VEAL.		PORK.	
Disease.	No.	Disease.	No.	Disease.	No.	Disease.	No.
Staggers	3	Asphyxia	15	Asphyxia	1	Pneumonia	1
Asphyxia	1	Oedematous	12	Black Quarter	1	Asphyxia	7
Parturition	1	Unwholesome	29	Oedematous	2	Rachitis	7
Extensively Bruised ...	1	Congested and ill-bled	17	Unwholesome	9	Oedematous	1
Metritis	2	Emaciation	3	Congested and ill-bled	3	Congested and ill-bled	1
Paralysis	1			Jaundice	4	Jaundice	1
Rheumatism	1			Joint ill	10	Enteritis	11
Congested and ill-bled	5			Immature	51	Septicaemia	1
Jaundice	1			Pyrexia	1		
Peritonitis	1			Scour	2		
Septicaemia	2						
Pyrexia	2						
Nephritis	1						
Multiple tumours	1						
	23		76		84		30

CONDEMNED CARCASSES, &c., SENT FOR UTILISATION AS MANURE.

	Tons	Cwt.	Qrs.
Meat.....	14	0	3
Offal.....	18	5	2

APPENDIX 14.

Fish, Rabbits, etc., Examined, Rejected and Destroyed.

Fish.				Rabbits.			Fruit	Meat	Milk	Chickens	Ducks	Bags of Offal	Butter
Boxes	Barrels	Bags	lbs.	Tins	Rabbits	C'ses	Tins	Tins	Tins				
351 $\frac{3}{4}$	3	18	222	69	1480	19 $\frac{3}{4}$	361	61	42	37	7	41	32 $\frac{1}{4}$ lbs.

NUMBER OF VISITS.

Butcher's Shops	4,366
Private Slaughterhouses	267
Meat Market	245
Fish Market	243
Railway Station	260

5,381

FRUIT, VEGETABLES, &c., surrendered and destroyed owing to unsoundness :—

Butter Scrapings	108 lbs.
Cherries	111 baskets.
Cauliflowers	8 baskets.
Carrots	54 bags.
Swedes	1 waggon.
Potatoes	2 tons, 14 cwts.
Tomatoes	160 lbs. and 31 tins.
Dates	1 $\frac{1}{2}$ tons.
Apples	14 boxes.
Plums	80 lbs.
Eggs	72.
Tinned Beef	2 tins.
Raspberries	56 lbs. and 3 tins.
Milk	21 tins.
Pears	1 tin.
Salmon	1 tin.
Blackberries	35 lbs.
Gooseberries	77 lbs.

Visits:

Chip Potato Shops	1,616
Fishmongers and Greengrocers ...	1,621
Milk Shops	360
Food preparing and storing places..	142

APPENDIX 15.

Sale of Food and Drugs Acts.

Samples taken	Formal	Informal	Samples Genuine.		Samples Adulterated.		Remarks
			Formal	Informal	Formal	Informal	
Milk	322	9	311	4	21	5	See Page 36
Butter	2	13	2	12	—	1	
Seidlitz Powders	1	8	1	7	—	1	do.
Cheese	1	7	1	7	—	—	
Coffee	1	7	1	7	—	—	
Baking Powder	1	6	1	6	—	—	
Rice	1	6	1	3	—	3	do.
Skimmed Milk...	5	—	5	—	—	—	
Self-raising Flour	1	2	1	2	—	—	
Ammoniated Tinc- ture of Quinine	—	3	—	3	—	—	
Paregoric ...	—	3	—	3	—	—	
Preserved Cream	2	—	2	—	—	—	
Gregory Powder	—	2	—	2	—	—	
Meat Preservative	—	2	—	2	—	—	
Camphorated Oil	—	2	—	2	—	—	
Cayenne Pepper	1	1	—	1	1	—	do.
Cream	1	—	1	—	—	—	do.
White Pepper ...	—	1	—	1	—	—	
Luncheon Sausage ...	1	—	1	—	—	—	
	350	72	328	62	22	10	

APPENDIX 16.

SALE OF FOOD AND DRUGS ACTS.

Action taken with regard to Adulterated Samples.

Articles Purchased.	Number Analysed	Number Genuine	Number Adulterated	Amount of Adulteration.	Action Taken.	
Milk	341	315	26	1	10% deficient in fat	Fined £1.
			2		8% " " "	Case withdrawn same vendor as above
			3		32% " " "	Fined £5.
			4		Rich milk slightly watered.	Other samples taken & found genuine
			5		" " "	" " "
			6		6% of added water	Fined £5.
			7		32% deficient in fat	Summoned but case dismissed. it was shown that this was ordered specially for an invalid by a doctor
			8		Slightly deficient in fat.	Other samples taken and found genuine.
			9		" " "	do.
			10		" " "	do.
			11		11% deficient in fat	Fined £5.
			12		Rich milk slightly watered.	Other samples taken and found genuine.
			13		5% of added water	Fined £2.
			14		10% " " " & 4% deficient in fat	Fined £2.
			15		Slightly deficient in fat	Other samples taken and found genuine.
			16		11% deficient in fat	Fined £1.
			17		13% " " "	Fined £5.
			18		23% " " "	Fined £5.
			19		6% " " "	Other samples taken and found genuine.
Carried forward						

Appendix 16 (contd.)

Articles Purchased	Number Analysed	Number Genuine	Number Adulterated	Amount of Adulteration	Action Taken.
Brought forward			20	Slightly watered	do.
			21	21% deficient in fat	Informal : formal sample taken and found genuine.
			22	12% ,, ,,	do.
			23	33% ,, ,,	do.
			24	8% ,, ,,	Informal : formal sample taken and vendor fined 40/-
			25	12% deficient in fat and one grain of annatto per gallon present	Fined 40/- and 5/- witness's fee, same vendor as previous sample.
			26	34% deficient in fat	Informal : a formal sample taken and vendor fined 20/-.
Butter	16	15	1	Consisted of Margarine	Informal : other samples taken & found genuine.
Seidlitz Powders	9	8	1	Deficient in Tartaric Acid. to the extent of 50%.	Informal : warning letter from Medical Officer of Health.
Rice	7		3	Contained 0.2% of Talc.	Informal sample : warning letter from Medical Officer of Health
				,, 0.3% ,,	do.
				,, 0.1% ,,	do.
Cayenne Pepper	2	1	1	Contained 1.0% of sand.	Warning letter from Medical Officer of Health.

APPENDIX 17.

Cases of Infectious Disease notified during the Year 1920.

NOTIFIABLE DISEASE.	Cases notified in whole District.							Total Cases notified in each Locality.												Total Cases removed to Fever Hospital.			
	At Ages—Years.							St. Stephen's	Trinity	St. Michael's	St. John's	St. Silas'	St. Paul's	St. Peter's	St. Mary's	St. Matthew's	St. Thomas'	Park	St. Luke's		St. Mark's	St. Andrew's	
	At all Ages	Under 1	1 to 5	5 to 15	15 to 25	25 to 45	45 to 65																65 and upwards
Small-pox .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cholera .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Diphtheria (including Membranous Croup)	69	3	15	40	10	1	...	6	18	6	25	5	...	...	...	...	...	...	...	...	...	...	...
Erysipelas	59	1	...	4	6	18	25	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Scarlet Fever.....	181	...	14	143	17	6	1	10	9	5	6	23	10	6	10	17	18	31	6	12	18	...	
Typhus Fever ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Enteric Fever ..	5	...	...	...	2	1	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Puerperal Fever ..	12	...	...	...	...	12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cerebro-spinal Meningitis .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ophthalmia Neonatorum	22	22	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Pulmonary Tuberculosis	88	...	1	13	23	31	20	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other forms of Tuberculosis	38	2	8	18	5	4	1	2	4	1	1	4	2	3	2	3	5	1	3	6	1	...	...
Poliomyelitis ..	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Encephalitis Lethargica	2	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dysentery	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Malaria	18	...	...	...	4	14	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Pneumonia	158	10	18	26	18	42	31	7	11	5	10	11	9	13	12	13	16	25	11	8	7	...	...
TOTALS.....	654	38	56	244	89	129	80	42	45	27	40	60	38	36	38	51	59	94	34	49	41	...	...

APPENDIX 18.

Shewing number of cases of Infectious Diseases notified from 1903 to 1920.

Disease.	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920
Smallpox	92	2	4	...	1	...	2	1	...	...	...	...	...	...	...	...	...	...
Diphtheria (including Mem- branous Croup)	132	60	157	166	150	100	102	96	107	55	76	62	39	52	50	57	30	69
Erysipelas ...	66	81	132	112	99	81	94	90	77	87	90	97	69	66	40	52	38	59
Scarlet Fever...	339	458	1578	849	544	595	1013	795	343	116	268	704	460	153	96	150	136	181
Enteric Fever	97	111	90	82	61	85	69	46	49	26	31	31	44	14	13	13	3	5
Puerperal Fever	11	7	24	12	25	11	11	10	9	9	8	10	5	5	3	5	5	12
Typhus Fever	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cerebro Spinal Meningitis ...	...	...	...	...	...	...	...	...	...	1	...	...	...	2	...	1	2	...
Poliomyelitis ..	...	...	...	...	...	...	...	...	...	4	1	...	...	1	...	...	...	1
Pulmonary Tuberculosis	...	...	...	...	...	...	...	...	...	217	230	212	213	154	131	176	124	88
Other forms of Tuberculosis	...	...	...	...	...	...	...	...	...	...	104	60	88	49	47	54	47	38
Ophthalmia	...	...	...	...	...	...	...	...	...	...	...	15	19	15	7	15	18	22
Neonatorum	...	...	...	...	...	...	...	...	...	...	...	...	...	1081	1938	1560	103	...
Measles.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5	2
Encephalitis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	1
Lethargica ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	61	18
Dysentery ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	114	158
Malaria .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Pneumonia ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Totals	737	719	1985	1221	880	872	1291	1038	585	515	808	1191	937	1592	2325	2083	689	654

APPENDIX 19.

DISINFECTION.

Number of rooms sprayed, 622 :—

Tuberculosis	230	Fever	327
Vermin	9	Others	56

Articles disinfected by Steam :—

Beds	680	Pillows	1,061
Sheets	464	Rugs	111
Mattresses	457	Quilts	901
Suits	558	Curtains	278
Bolsters	490	Blankets	1,175
Carpets	183	Sundries	1,690

Number of articles destroyed by consent of owners :—

Beds	30	Mattresses	19
Pillows	11	Bolsters	13
Quilts	5	Blankets	7
Sheets	2	Suits	4
Carpets	3	Sundries	68

Amount of Disinfectant distributed :—

Chloros	175 gallons.
Carbolic Powder	723 packets.
Lime	620 bags.

Persons cleansed at disinfection station 25

APPENDIX 20.

Cases of Tuberculosis Treated in Meathop Sanatorium, 1920.

			ADMITTED.										DISCHARGED.						
Non-Insured.	Insured Non-Pensioners.	Insured Pensioners.	Age Periods.						Stage of Disease.			N. I. Act.			Condition of Patients on Discharge.				
			10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	Early.	Moderately Advanced.	Advanced.	Insured. Treated by		Disease Arrested.	Disease Quiescent.	Condition Improved.	No Im-provement.	Average Stay in Sanatorium.	
												H'lth Com.	Ins. Com.						
3	5	21	2	5	9	8	5	...	19	10	Nil	11	15	3	30	5	10	5	97.8 days
Males..... (29 cases)			...	3	3	6	...	...	4	6	2	9	3	...	12	3	3	5	117.1 days
Females..... (12 cases)																			
All Insured																			

VENEREAL DISEASES TREATMENT SCHEME.

Return relating to all persons who were treated at the Treatment Centre at Royal Infirmary, Blackburn, during the year ended the 31st December, 1920.

Statement showing the services rendered at the Treatment Centre during the year, classified according to the areas in which the patients resided.

Name of County or County Borough or County in the case of persons residing elsewhere than Lancashire, Cheshire, and Wales to be inserted in these headings.	Blackburn.	Preston.	Lancs.	Total.
A. Number of persons from each area dealt with during the year at or in connection with the Out-patient Clinic for the first time and found to be suffering from:—				
Syphilis	157	1	175	333
Soft Chancre.....	18	...	29	47
Gonorrhoea.....	50	...	59	109
Conditions other than Venereal	66	...	55	121
Total	291	1	318	610
B. Total number of attendances at the Out-patient Clinic of all patients residing in each area	2,743	42	3,144	5,929
C. Aggregate number of "In-patient days" of all patients residing in each area	239	...	237	476
D. Number of doses of Salvarsan substitutes given in the:—				
Out-patient Clinic				
In-patient Dept.				
Total	1,011	18	1,206	2,235
E. Give the names of Salvarsan substitutes used in the treatment of Syphilis and the usual initial and final doses.	Neoharsivan Galyl		0.45 grm. to 0.9 grm. 0.30 " " 0.40 "	
F. State the number of doses of Salvarsan substitutes usually given in a full course of treatment.	7 to 8 doses	—	never less than seven.	
G. State in what proportion of cases, approximately, Salvarsan substitutes are used in the treatment of Syphilis.	Nearly all cases.			
H. State the nature of tests applied in deciding as to discharge of patients referred to in Item 5 on previous page.	Wasserman, Smears, Bougies, Alcoholic Stimulation, Silver Nitrate Injections, Gonococcal Vaccines.			

Date 1st. February, 1921.

Signed:—WILLIAM CRAN DUTHIE,
Medical Officer of the Treatment Centre.

1. Number of persons who, on the 1st Jan. 1920, were under treatment or observation for	Syphilis		Soft Chancre		Gonorrhoea		Conditions other than Venereal		Total.	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
2. Number of persons dealt with during the year at or in connection with the out-patient Clinic for the first time and found to be suffering from	152	94	20	...	63	7	2	1	237	102
Syphilis only	216	109	...	...	...	...	...	...	216	109
Soft Chancre only .....	...	...	30	...	...	...	...	...	30	...
Gonorrhoea only .....	...	...	...	...	90	10	...	...	90	10
Syphilis and soft chancre	7	...	7	...	...	...	...	...	14	...
Syphilis and Gonorrhoea	7	1	...	...	7	1	...	...	14	2
Gonorrhoea and soft chancre .....	...	...	1	...	1	...	...	...	2	...
Syphilis, soft chancre and Gonorrhoea .....	...	...	...	...	...	...	...	...	...	...
Conditions other than Venereal ..	...	...	...	...	...	...	...	...	...	...
Total — Item 2	430	110	38	...	98	11	77	46	443	167
Total — Items 1 & 2	382	204	59	...	161	18	79	47	680	269
3. Number of persons who ceased to attend the out-patient Clinic. (a) before completing a course of treatment for	124	44	17	...	40	5	...	...	182	50
(b) after completion of a course of treatment, but before final tests as to cure of	90	75	16	...	62	4	...	...	168	79
4. Number of persons transferred to other Treatment Centres after treatment for	3	2	...	...	...	1	...	...	3	3
5. Number of persons discharged from the out-patient Clinic after completion of treatment and observation for	20	10	6	...	12	5	...	...	38	15
6. Number of persons who, on the 1st January, 1921, were under treatment or observation for	145	73	19	...	47	3	S	7	219	83
Total — Items 3, 4, 5 & 6	382	204	58	...	161	18	...	...	...	...
7. Total attendances of all persons at the out-patient Clinic who were suffering from	2856	1161	263	...	1143	185	196	155	4458	2001
8. Aggregate number of "In-patient" days of treatment given to persons who were suffering from	113	290	17	...	33	18	5	...	168	308
9. Examinations of Pathological material:—	For detection of				For Wasserman Reaction.					
	Spirochets		Gonococci		Other Organisms					
(a) Specimens which were examined at, and by the Pathologist of, the Treatment Centre	2		66		11				...	
(b) Specimens from persons attending at the Treatment Centre which were sent for examination to an approved laboratory .....	...		169		...				700	



APPENDIX 23.

VENEREAL DISEASES SCHEME.

Annual Return of Pathological Examinations made during
the year ended 31st December, 1920 :—

Number of Tests.

At the University of Manchester :

For detection of spirochætes—

For Treatment Centre	—
For Practitioners	—
For Union Infirmary	—

For detection of gonococci—

For Treatment Centre	178
For Practitioners	11
For Union Infirmary	3

For Wasserman reaction—

For Treatment Centre	797
For Practitioners	135
For Union Infirmary	37

APPENDIX 24.

WORK OF HEALTH VISITORS.

MATERNITY AND CHILD WELFARE.

Total visits	20,292
<i>Expectant Mothers.</i>	
First visits	135
Return visits	251
Ineffective visits	24
<i>Infants under 1 year.</i>	
First visits	2,708
Routine visits	10,752
Ineffective visits	1,551
<i>Children over 1 year.</i>	
Routine visits	2,814
Ineffective visits	165
<i>Ophthalmia Neonatorum.</i>	
First visits	18
Revisits	94
<i>Deaths.</i>	
Visits <i>re</i> Deaths under 1 year	221
<i>Stillbirths.</i>	
<i>Puerperal Fever.</i>	
First visits	4
Revisits	—
<i>Welfare Clinics.</i>	
No. of sessions assisting	669
<i>Sanitary defects noted</i>	90
<i>Miscellaneous Visits</i>	540
<i>Midwives Acts.</i>	
No. of visits to Midwives :—	
Routine	102
Special	17
Ineffective	46
<i>TUBERCULOSIS.</i>	
First visits	190
Revisits	695
Ineffective	286

APPENDIX 25.

MIDWIVES ACTS.

Reasons why medical help was sought by midwives :—

Pregnancy.

Albuminuria	1
Oedema	2
Persistent vomiting	2

Labour.

Presentations :—

“ Undiagnosed ”	4
“ Contracted pelvis ”	7
“ Occipito-posterior ”	4
“ Face ”	6
“ Foot ”	2
“ Funis ”	7
“ Placenta prævia ”	3
“ Transverse ”	2
“ Breech ”	2
Abortion	4
Eclampsia	1
Rigid cervix	7
Post-partum Hæmorrhage	5
Ante-partum Hæmorrhage	7
Adherent placenta	6
Rigid perinæum	6
Ruptured perinæum	166
Retained membranes	2
Obstructed labour	46
Uterine inertia	32
Excessive vomiting	1
High temperature	9
Head impacted	6
Miscellaneous	12

Puerperium.

High temperature	11
Collapse	5

Pneumonia	1
Heart affected	2
Post-partum Hæmorrhage	4
Influenza	1

Infant.

Asphyxia	4
Atelectasis	1
Debility	30
Prematurity	12
Ophthalmia	7
Inflamed eyes (slight)	17
Jaundice	2
Convulsions	2
Phimosis	4
Diarrhœa	1
Malformations	4
Heart affected	2
Hæmorrhage per rectum	1
Spina-Bifida	3
Colic	4
Death of infant	1
Stillborn	1

Total 472

APPENDIX 26.

CORPORATION HOSPITAL.

REPORT OF THE RESIDENT MEDICAL OFFICER.

Table I.

PATIENTS IN HOSPITAL on 1st January, 1920.

Scarlet	37
Diphtheria	4
Enteric Fever	—
Other Diseases	—
Total	41

TABLE II.

Scarlet Fever Cases Admitted.

Ages.	Males.	Females.	Totals.	Deaths.
1— 2 years.....	0	1	1	...
2— 3 „	1	...	1	...
3— 4 „	1	4	5	...
4— 5 „	4	6	10	...
5—10 „	35	49	84	3
10—15 „	11	25	36	...
15—20 „	7	7	14	...
20—25 „ .....	...	4	4	...
25—30 „	1	2	3	...
30 and over	2	4	6	...
	62	102	164	3

Of the 164 cases admitted, 7 showed no signs of the disease.

Three deaths occurred, giving a case-mortality of slightly under 2 %.

No case of cross infection occurred during the year.

The following complications or sequelæ occurred :—

Rhinorrhœa	24
Adenitis	15
Otorrhœa	11

Arthritis	4
Nephritis	2
Albuminuria	6
Septic Finger	2
Septic Sores	1
Cellulitis of Face	1
Cellulitis of Orbit	1
Blepharitis	1
Broncho-pneumonia	1

The average duration of treatment was 39.5 days, and the average number of beds occupied was 17.7.

TABLE III.

Diphtheria Cases Admitted.

Ages.	Males.	Females.	Totals.	Deaths.
Under 1 year ...	...	2	2	2
1—2 years.....	...	1	1	1
2—3 „	1	1	2	1
3—4 „ .....	...	6	6	1
4—5 „	1	...	1	...
5—10 „	13	15	28	2
10...15 „	1	5	6	...
15—20 „	2	2	4	...
20—25 „ .....	...	1	1	...
25 and over	2	6	8	...
	20	39	59	7

Of the 59 cases admitted, 6 were found clinically and bacteriologically not to be suffering from diphtheria.

Of the 53 true cases, 9 were laryngeal, and tracheotomy was performed in 5 of those cases with two recoveries and three deaths: four laryngeal cases recovered without operation.

Seven deaths occurred among the 53 true cases, giving a case-mortality of 13.2 %: four of the patients died within 48 hours of admission.

The following complications and sequelæ occurred :—

Cardiac Paralysis	6
Palatal Paralysis	4
Ciliary Paralysis	1
Squint	1

One case developed measles on the tenth day after admission.

The average period of treatment was 36.1 days, and the average number of beds occupied 5.9.

TABLE IV.
Enteric Fever Cases Admitted.

Ages.	Males.	Females.	Totals.	Deaths.
21 years .....	...	1	1	...
23 „ .....	...	1	1	...
27 „ .....	...	2	2	...
30 „	—	1	1	...
45 „ .....	...	1	1	...
49 „	1	...	1	...
Totals.....	1	6	7	...

Of the above cases all the females were true cases with positive vedal reaction.

The male case gave a negative reaction, and was diagnosed as a case of Encephalitis Lethargica.

The average number of days in hospital was 52.

OTHER DISEASES.

One case of suspected cerebro-spinal meningitis was admitted. On lumbar puncture it proved to be a case of tuberculous meningitis. The patient—a girl aged 10 years—died within a few hours of admission.

Four cases of Ophthalmia Neonatorum—two sets of twins—were admitted for treatment with their mothers,

making a total of 6 patients. Three of the babies recovered, and one died of premature birth and debility : in the others the vision on discharge was normal.

The average time in hospital of these 7 patients was 21.1 days.

Table VI.

PATIENTS IN HOSPITAL on 31st December, 1920.

Scarlet Fever	16
Diphtheria	6
Enteric Fever	1
Other Diseases	—
	<hr/>
	23

EXTRA DISTRICT PATIENTS.

Eleven patients from outside the Borough were treated during the year and the authorities concerned were charged with the cost of their maintenance.

Scarlet Fever	7
Enteric Fever	2
Diphtheria	2
	<hr/>
Total	11

These cases are included in the preceding Tables.

A. J. EWING,

Resident Medical Officer.

APPENDIX 27.

Houses closed by the Sanitary Authority year by year
since 1879.

Year.	No. of Houses for which closing orders have been made.	No. of Houses Demolished.	Converted to Workshops.	Closed and Uninhabited.	Back to back made into through houses.	Repaired and now occupied.	Cellars added to houses or filled in.
1879	5	5	...	...	...	...	...
1880	17	7	1	1	8	...	...
1881	73	9	3	...	31	3	27
1882	79	37	4	...	7	1	30
1883	17	7	8	...	1	...	1
1884	6	6	...	...	...	...	...
1885	8	6	...	...	2	...	...
1886	...	...	...	...	...	...	...
1887	...	...	...	...	...	...	...
1888	...	...	...	...	...	...	...
1889	10	5	1	...	...	...	4
1890	12	1	...	...	...	...	11
1891	...	...	...	...	...	...	...
1892	10	2	1	...	2	...	5
1893	16	6	...	...	4	4	2
1894	81	27	11	1	8	4	30
1895	45	28	1	1	...	3	12
1896	49	12	17	2	10	2	6
1897	60	24	15	1	13	2	5
1898	10	3	5	...	...	...	2
1899	72	46	16	...	8	1	1
1900	36	18	8	4	1	2	3
1901	61	30	15	1	3	12	...
1902	33	20	4	2	4	3	...
1903	45	29	14	1	...	1	...
1904	45	9	15	...	5	16	...
1905	13	6	5	1	1	...	...
1906	57	14	20	...	...	23	...
1907	12	8	2	...	2	...	...
1908	18	18	...	...	...	...	...
1909	11	5	6	...	...	...	...
1910	12	4	6	...	...	2	...
1911	13	2	6	2	3	...	...
1912	5	4	1	...	...	...	...
1913	2	1	1	...	...	...	...
1914	3	...	3	...	...	...	...
1915	4	...	...	2	...	*2	...
1916	6	...	...	...	...	*6	...
1917	...	...	...	...	...	...	...
1918	1	...	1	...	...	...	...
1919	14	1	11	2	...	...	...
1920	4	...	...	3	...	*1	...
Total...	965	400	201	24	113	88	139

*Not repaired satisfactorily.

APPENDIX 28.

HOUSING CONDITIONS.

Statistics.

Year ended 31st December, 1920.

1.—GENERAL.

(1) Estimated population	140,000
(2) General Death-rate	12.7
(3) Death-rate from tuberculosis	0.79
(4) Infantile mortality	110
(5) Number of dwelling-houses of all classes	31,630
(6) Number of working-class dwelling-houses	26,801
(7) Number of new working-class houses erected ...	23

2.—UNFIT DWELLING-HOUSES.

I.—Inspection.

(1) Total number of dwelling-houses inspected for housing defects (under Public Health or Housing Acts)	1,354
(2) Number of dwelling-houses which were inspected and recorded under the Housing (Inspection of District) Regulations, 1910	Nil
(3) Number of dwelling-houses found to be in a state so dangerous or injurious to health as to be unfit for human habitation	Nil
(4) Number of dwelling-houses (exclusive of those referred to under the preceding sub-heading) found not to be in all respects reasonably fit for human habitation	Nil

II.—Remedy of Defects without Service of formal Notices.

Number of defective dwelling-houses rendered fit in consequence of informal action by the Local Authority or their officers	Nil
---	-----

III.—Action under Statutory Powers.

A. Proceedings under section 28 of the Housing, Town Planning, &c., Act, 1919.

(1) Number of dwelling-houses in respect of which notices were served requiring repairs	Nil
---	-----

(2) Number of dwelling-houses which were rendered fit—	
(a) By owners	Nil
(b) By Local Authority in default of owners	Nil
(3) Number of dwelling houses in respect of which Closing Orders became operative in pursuance of declarations by owners of intention to close	Nil
B. Proceedings under Public Health Acts.	
(1) Number of dwelling-houses in respect of which notices were served requiring defects to be remedied	936
(2) Number of dwelling-houses in which defects were remedied—	
(a) By owners	878
(b) By Local Authority in default of owners	Nil
C. Proceedings under sections 17 and 18 of the Housing, Town Planning, &c., Act, 1909.	
(1) Number of representations made with a view to the making of Closing Orders	Nil
(2) Number of dwelling-houses in respect of which Closing Orders were made ...	Nil
(3) Number of dwelling-houses in respect of which Closing Orders were determined, the dwelling-houses having been rendered fit	Nil
(4) Number of dwelling-houses in respect of which Demolition Orders were made.	Nil
(5) Number of dwelling-houses demolished in pursuance of Demolition Orders..	Nil

3. UNHEALTHY AREAS.

Areas represented to the Local Authority with a view to Improvement Schemes under (a) Part I., or (b) Part II., of the Act of 1890 :—

(1) Name of area	Nil
(2) Acreage	Nil

- | | |
|---|-----|
| (3) Number of working-class houses in area ... | Nil |
| (4) Number of working-class persons to be displaced | Nil |

IV.—Number of houses not complying with the building bye-laws erected with consent of Local Authority under section 25 of the Housing, Town Planning, &c., Act, 1919 .. Nil

V.—Staff engaged on housing work:—

Medical Officer of Health, Inspector of Nuisances,
and 5 District Inspectors.

APPENDIX 29.

LOCAL POWERS RELATING TO PUBLIC HEALTH.

1.—*Blackburn Corporation Acts and Orders:—*

The Blackburn Improvement Act, 1882.

The Blackburn Water Act, 1885.

The Blackburn Corporation Act, 1892.

Local Government Board's Provisional Orders Confirmation (No. 14) Act, 1894.

Local Government Board's Provisional Orders Confirmation (No. 18) Act, 1897.

The Blackburn Corporation Act, 1901.

The Blackburn Corporation Act, 1908.

Local Government Board's Provisional Orders Confirmation (No. 9) Act, 1910.

Local Government Board's Provisional Orders Confirmation (No. 1) Act, 1919.

The Blackburn Corporation Water Act, 1911.

2.—*Acts of Parliament adopted by the Council:—*

Parts II. and III. of the Public Health Acts Amendment Act, 1890, adopted by the Town Council, 2nd April, 1891.

Infectious Disease (Prevention) Act, 1890, adopted by the Town Council (except sections 14 and 19), 5th March, 1891.

Part III. of the Housing of the Working Classes Act, 1890, adopted by the Town Council 5th August, 1897.

Public Health Acts Amendment Act, 1907, certain sections adopted by Orders of the Local Government Board of the 5th December, 1908, 5th January, 1910, and by order of the Secretary of State dated 27th October, 1909.

3.—*Bye-laws and Regulations in force in the Borough:—*

General Bye-laws dated 12th January, 1855.

Bye-laws for regulation of Private Slaughterhouses, 25th October, 1877.

Regulations for preventing waste, misuse, or contamination of water, 17th December, 1887.

Bye-laws *re* Common Lodging Houses, 6th September, 1888.

Bye-laws made under Contagious Diseases (Animals) Acts, 1878 to 1890, and the Dairies, Cowsheds and Milkshops Orders of 1885 and 1886, 5th July, 1893.

Bye-laws *re* Houses let in Lodgings, 4th April, 1895.

Bye-laws for regulation of Offensive Trades, 4th March, 1897.

Bye-laws with respect to Management and Charges of Slaughterhouses established by the Council, 20th March, 1901.

Bye-laws for the Prevention of carrying of Carcases through the streets, 25th April, 1901.

Bye-laws *re* Cattle Markets, 1st June, 1905.

Regulations made under the Diseases of Animals Acts, 1894 to 1903, and Lancashire (Parasitic Mange) Order of 1908, 9th February, 1910.

Regulations made under the Diseases of Animals Acts and Glanders or Farcy Order of 1920, 17th February, 1921.